Agriculture and Trade Analysis Division

Economic Performance and Policy Adjustment

The Experience of Zimbabwe

Shahla Shapouri
Margaret Missiaen

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Abstract

Zimbabwe's economy faces a number of external and internal challenges in the 1990's, which will determine its future well being. Among the external factors is the rate of growth of the industrial countries. Economic conditions in these countries largely determine global demand. Internal policy adjustments can provide adequate flexibility to the economy to overcome the external pressures and achieve sustained economic growth. Zimbabwe's policy adjustments in the 1980's improved its trade and current account balances, from deficits in the early 1980's to surpluses by 1987 and 1988.

Keywords: Africa, Zimbabwe, economic and policy reform, investment, economic and agricultural growth, debt

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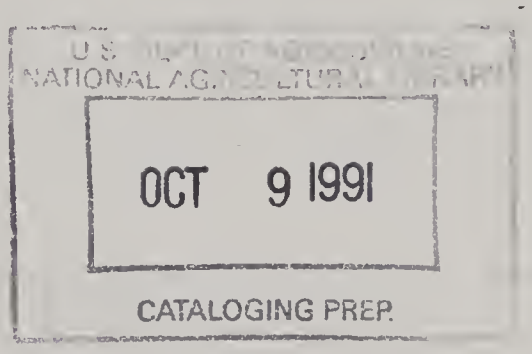

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Introduction

Most African countries have implemented major policy reforms and economic adjustments proposed by international financial institutions in the 1980's. These reforms were designed to address the long-term imbalances between domestic demand and supply, which caused growing external deficits and a slowing of economic growth. Domestic policies are a major cause of these imbalances. In the late 1970's, as economic difficulties grew in most of Sub-Saharan Africa, countries could not obtain external financial support essential to restoring economic growth. With growing constraints on the availability of capital, the International Monetary Fund (IMF) and the World Bank frequently made loans contingent on a set of macroeconomic, trade, and agricultural policy reforms aimed at increasing productive capacity (3, 17).[1]

The objective of this paper is to evaluate changes in the key economic indicators in Zimbabwe, analyze the underlying policies, and establish both quantitative and qualitative relationships between performance indicators and policies. The main focus areas are macroeconomic, trade, and agricultural policies that affect both supply and demand. The period of the study is from the date of Zimbabwe's independence in 1980 to 1989.

The analysis begins with a brief overview of Zimbabwe's economic situation in the early 1980's and the basis for policy change. This is followed by a review of the performance of key economic indicators and related policies. The key indicators are economic growth, current account and trade balance, and agricultural sector performance. The evaluation of economic response to policy changes follows a simple growth model with foreign and internal investment and exports being the key variables.

The review of agricultural performance is followed by the analysis of the agricultural sector policies. The analysis of the effect of incentive policies on agricultural performance

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[1] Underlined numbers in parentheses refer to sources listed in the References at the end of this report.

(sector, commodity groups, and individual crops) is based on establishing a qualitative relationship between policy variables and performance. The results of this study can be useful in establishing the fundamental causal relationships between economic indicators and macroeconomic policies, identifying the policy constraints, and warning of unexpected and/or negative effects of the policies. An inventory of structural adjustment policies is included in the Appendix.

Economic Background

Zimbabwe's colonial past is unique in that the white settler minority was not only sizable and influential but, since 1923, possessed de facto self-government. In 1965, the minority unsuccessfully attempted to win de jure sovereignty with the Unilateral Declaration of Independence (UDI). By controlling the instruments of government, the settlers were able to structure the economy to their own advantage by means of broad state intervention (20). After UDI, the international community imposed economic sanctions and civil war broke out. The trade embargo lasted until agreement on majority rule was reached in 1979. Zimbabwe became independent on April 18, 1980, with a dual economic structure consisting of a well-developed modern sector dominated by a small white population and a largely African, subsistence/communal sector.

The modern sector, accounting for the greater part of the gross domestic product (GDP), includes most of the country's fertile agricultural land and mineral resources and is served by a developed transport and electric power infrastructure. Pre-independence economic development efforts were centered almost entirely in this sector.

Following independence, the political and economic promises of the new government led to major policy reforms aimed at "growth with equity." The new government's goals included: providing an adequate return to producers, maintaining low consumer prices, encouraging food self-sufficiency, and promoting exports.

In 1980 and 1981, good weather, the cessation of civil strife, and the lifting of international sanctions led to strong economic recovery with a 12-percent growth in the GDP. But in early 1982, drought and depressed world prices for some of Zimbabwe's agricultural and mineral exports resulted in a severe foreign exchange shortage, reducing funds for imports of essential inputs for the manufacturing sector. The slow income growth and increasing government investment and expenditure led to a growing budget deficit.

Economic Performance

Since Zimbabwe possesses a diversified production base in agriculture, mining, and manufacturing, its economic potential is

much greater than most developing countries. From the 1980-82 base period to 1988, economic activity showed cyclical fluctuations. On average, real GDP declined by 2 percent each year from 1980-82 to 1988, population grew by 3 percent each year, and real per capita income declined by 5 percent each year (table 1). The growth in agricultural production was less than the total growth in the economy. Zimbabwe's slow agricultural growth, largely caused by consecutive droughts in 1983 and 1984, also affected the performance of the agro-industry sector, which is a large part of the manufacturing sector.

The Economy

In 1982, the government published the Transitional National Development Plan for 1982/83-1983/84 followed in 1986 by the comprehensive Five Year Development Plan for 1986-90 (11). These plans provided a macroeconomic framework for the economy's development. Major policy goals included: reducing the current account deficit through a restrictive monetary policy, limiting overall credit expansion, and cutting the fiscal deficit. The government sought to control inflation by keeping the growth of the money supply consistent with GDP growth.

The Central Reserve Bank of Zimbabwe regulates monetary and credit levels through credit allocation both directly, by establishing quotas for loans, and indirectly, by regulating foreign exchange allocations and changing the level of interest rates. (See the Appendix for a summary of these policies.)

Consumption as a share of GDP declined from 85 percent in 1980-82 to 74 percent in 1988 because of credit control and import restriction policies that reduced the availability of consumer goods. The decline in consumption led to increased savings, 23 percent in 1988 versus 20 percent in 1980-82, and a slow recovery in investment in nominal terms. However, part of the recovery was offset by the earlier decline in stocks which reduced capital formation relative to GDP from 18 percent in 1980-82 to 17 percent in 1988 (table 1).

Investment declined significantly in real terms because of the increase in prices of investment goods (scarcity and the higher prices of imported goods) and credit restrictions. Domestic credit declined significantly from 1983 to 1986 as a result of government curbs designed to control inflation and to dampen consumer demand. Credit restrictions were relaxed in 1987 in response to the decline in investment. The credit/GDP ratio increased to 39 percent in 1988.

The ratio of money supply to GDP was higher in 1980-82 than during 1983-87, mainly because of government deficit financing. The government response was the tightening of monetary controls. The money supply/GDP ratio declined to 12 percent in 1983, 13.5 percent in 1984, and stabilized at 14 percent in 1986-87. It rose to 17 percent in 1988, the highest level during the 1980's, in line with a more relaxed credit policy (table 1).

Table 1--Zimbabwe: Macoeconomic performance indicators and policies

Item	Base period 1980-82	1983	1984	1985	1986	1987	1988
Performance indicators:							
Population (mil)	7.31	7.74	7.98	8.38	8.41	8.64	8.88
GDP, nominal (mil local)	4,349	6,224	6,404	7,019	7,902	8,291	9,299
GDP, real (mil local)	3,855	4,039	3,458	3,494	3,440	3,210	3,362
Per capita real GDP (index)	100.0	99.0	82.2	79.1	77.6	70.5	71.8
				Percent			
Capital formation/GDP	18.4	19.9	18.5	16.1	16.7	16.8	17.5
Gross domestic investment/GDP	25.3	16.1	18.9	21.1	21.4	21.5	22.4
Gross national saving/GDP	19.5	8.8	17.3	18.8	21.6	23.0	22.5
Consumption/GDP	85.3	87.1	80.5	77.7	74.1	74.0	74.1
Macro policy:							
Money supply/GDP	16.4	12.1	13.5	14.3	14.0	14.8	17.2
Domestic credit/GDP	34.2	34.1	32.4	33.0	31.3	37.3	38.7
Budget balance/GDP (inc. grants)	-9.4	-7.6	-9.1	-7.8	-9.1	-12.5	-10.6
Government subsidy/GDP	2.6	2.1	3.8	4.7	4.2	5.2	5.2
Interest rate	20.0	23.1	23.0	17.2	13.0	13.0	13.0
				1980 = 100			
Consumer price index:							
Total, all commodities	112.8	154.1	185.2	200.9	229.7	258.3	276.6
Food, high-income urban	113.2	152.1	183.8	200.6	225.1	261.0	286.5
Food, low-income urban	111.9	159.1	198.8	212.3	240.1	276.0	300.2

Sources: (9 and 11).

The Central Reserve Bank attempted to stabilize interest rates by using shortrun monetary management. The nominal interest rate declined from 1983 to 1986 and remained there through 1988 (resulting in a decline in real interest). These credit restrictions reduced investment growth. Responding to this slowdown, the government adopted new policy measures to promote investment, particularly from foreign sources (see Appendix). Investment as a share of GDP had recovered in 1988.

The Development Plan also included tax changes. The budget deficit grew during the study period despite the tax reforms (improving slightly in 1988), primarily because of government wage and salary increases and higher interest payments. Total subsidies increased, but their share of total expenditures remained stable.

The government seemed unable to reduce the rate of growth in public expenditures despite various control measures. After having stabilized in the mid-1980's, the government's budgetary position deteriorated sharply in 1987. Budget deficits were lowest in 1983 at 7.6 percent of GDP and the highest in 1987 at 13 percent of GDP (table 1). A 40- to 45-percent drop in external grants received between 1984 and 1986 was not matched by

a simultaneous reduction in expenditures, thereby exacerbating the fiscal problems. Financing these budget deficits became a problem. The government borrowed from internal sources, thereby reducing capital available for private investment.

The pressure on government subsidies varied considerably during the 1980-88 period. Consumer food subsidies were cut significantly. Yet, the government's total subsidy/GDP ratio grew to 5.2 percent during 1987-88. The increased subsidies went largely to Zimbabwe National Airways and the Zimbabwe Steel Corporation.

The moderate growth in the money supply and in domestic credits reduced the acceleration of the inflation rate despite continued budget deficits. The rate of change in the Consumer Price Index (CPI) averaged 12 to 14 percent annually after an initial sharp rise of 37 percent in 1983. The prices of foodstuffs more than doubled from 1980-88, reflecting reduced food subsidies. (See Appendix for additional information on price controls.)

Balance of Payments and Trade Performance

The most important feature of Zimbabwe's external policy adjustment was the improvement in its current account balance. A deficit of $530 million in 1980-82 improved to a surplus of $48 million in 1987 (table 2). In 1980-82, Zimbabwe's current account deficit stood at 12 percent of GDP. To reduce the trade deficit, the government restricted foreign exchange allocation for imports and adopted an exchange rate depreciation policy in 1982. The exchange rate has been periodically adjusted with reference to a trade-weighted basket of 14 currencies. In 1982, the Zimbabwe dollar was devalued 16.5 percent, followed by 23 percent in 1983-84, and 30 percent in 1984-85. Exchange rate adjustments slowed from 1985-87, but increased again in 1988 (table 2).

The export response to exchange rate adjustment was limited. From 1982-88, export growth was a weak 2.4 percent per year, primarily because of the slow increase in export volume. Government policies, particularly slow exchange rate adjustment and shortages of imported inputs, were partially responsible for the poor export performance.

In addition to government policies, weather variability contributed to Zimbabwe's slow export growth, particularly agricultural exports. About 30 percent of Zimbabwe's exports are primary products including tobacco, cotton lint, corn, sugar, coffee, and meat (including processed raw materials). In 1988, agricultural exports accounted for one-third of export earnings, followed by minerals (31 percent), and manufactures (20 percent). The major mineral exports are gold, nickel, asbestos, copper, and coal. Income growth led to increased domestic consumption of commodities usually slated for export such as coal (substitute for petroleum).

Table 2--Zimbabwe: Trade policies and performance indicators

Item	Base period 1980-82	1983	1984	1985	1986	1987	1988
				Million dollars			
Trade performance:							
Balance of payments	-530	-460	-100	-76	7	48	9
Balance of trade	-45	87	187	199	309	378	392
Exports, merchandise, f.o.b	1,404	1,155	1,175	1,117	1,317	1,447	1,586
Imports, merchandise, f.o.b	1,448	1,069	989	917	1,008	1,069	1,193
				Percent			
Export growth rate	1,404	-17.7	1.7	-5.0	18.0	9.8	9.6
Import growth rate	1,448	-26.2	-7.5	-7.2	9.9	6.0	11.6
Exports/GDP(nom)	21.8	16.5	19.8	25.6	27.5	28.6	30.2
Imports/GDP(nom)	25.6	17.1	18.7	23.7	23.9	24.2	26.1
Trade policy:							
Exchange rate (Z$ per U.S.$)	.70	1.01	1.24	1.61	1.67	1.66	1.80
Real effective exchange rate	112.5	103.3	103.4	92.1	84.7	80.8	75.1
				Percent			
Trade taxes/GDP	1.7	3.7	4.5	4.6	5.1	5.2	5.5

Sources: (10 and 24).

Government policies were effective in cutting imports, which was the key factor in improving Zimbabwe's balance of payments during most of the study period. Before 1980, a combination of international sanctions and a self-sufficiency policy substantially reduced imports. After independence, in 1980-81, import policies were relaxed as a part of a program to rebuild the economy. This led to higher imports and put pressure on the balance of payments. In 1982, import policies were adjusted to lessen import growth. In 1983, an import cut of about 40 percent reduced the current account deficit by 32 percent. Import restriction policies were continued until 1987, resulting in an improvement in the balance of payments from a deficit of $530 million in 1980-82 to a surplus of $48 million in 1987. Import restrictions were eased in 1988 to stimulate domestic economic activities. As a result, imports rose 12 percent.

Zimbabwe's imports are controlled through foreign exchange allocations. With the exception of a few commodities, import licenses are required and must be drawn against foreign exchange allocation certificates issued by the Ministry of Trade and Commerce. Certificates are normally valid for 12 months. Zimbabwe's customs duty regime consists mainly of ad valorem duties, plus additional taxes equivalent to the sales tax imposed on goods sold domestically. Custom duty receipts were boosted to reduce imports and increase government revenue by a switch from a f.o.b (free on board) to a c.i.f. (cost, insurance, and freight) basis of collection in 1988.

Macroeconomic Policy and Performance

The performance of the various sectors of Zimbabwe's economy in the 1980's is relatively easy to document. Linking that performance to changes in policies is much more difficult. Several analysts argue that changes in macroeconomic policies have decisive effects on the country's economic performance (1, 4, 12, 14, 16, 19). As Khan contends, the broad objectives of macroeconomic policies are to achieve a high and sustained rate of economic growth, reasonable price stability, and a viable external position (14). In general, these policies can be grouped as to whether their effects fall more directly on the aggregate demand or production (fiscal and monetary policies), or on the composition of aggregate demand and production (trade and exchange rate policies).

Assessing the effect of macroeconomic policy adjustments on economic growth or changes in production composition of Zimbabwe is hampered by the short duration of the policy changes already undertaken and the expected lagged response to these changes. Therefore, we limited our analysis to relating the effect of two key variables, investment and exports (using a simple macroeconomic growth model), and analyzing the changes in policies as they relate to these two variables.

Earlier studies have shown a strong relationship between income growth and investment and exports in developing countries (13, 14, 15). In Zimbabwe, the decline in investment was considered a key factor behind the slow economic growth. The fiscal policies led to growing budget deficits and the cautious monetary policies led to credit restrictions. These policies resulted in a decline in investment from domestic resources. The increase in balance-of-payment deficits also reduced foreign capital inflow (foreign investment).

The effect of export sector performance on economic growth has been highlighted in the literature (4, 15, 16, 18). In developing countries, the export sector serves as a vehicle for technology transfer through the importation of capital goods. Increased exports raise the capacity to service external debt and promote a higher rate of foreign capital inflow for investment. A poor performance of the export sector means less foreign exchange availability, diminished imports, reduced imported inputs, less foreign credit, and, ultimately, a decline in the performance of the economy. To test the significance of investment and exports on Zimbabwe's economic growth, the relationship is expressed as follows:

$$Y = f\ (K,\ L,\ X)$$

where Y is real aggregate output, K is stock of capital, L is labor, and X is exports. Transforming this expression yields the growth equation (indicated by $_g$):

$$Y_g = f\ (\ L_g,\ I/Y,\ X_g)$$

where Y_g is income growth measured by real GDP (CPI is used as a deflator), L_g is labor growth, I/Y is investment share of income, and X_g is export growth. In estimating the income growth equation, total investment was divided into two components: internal and foreign investment. This was done to test their independent effects on income growth. This is important because government policies have a strong direct influence on internal investment, but less influence on foreign investment. Estimation of the growth relationship is based on the assumption that labor growth (L_g) and foreign investment (I_f/Y) are exogenous, while domestic investment (I_d/Y) and export growth (X_g) are endogenous.

In assessing the effect of factors affecting domestic investment, we reviewed a number of studies that analyze investment in developing countries (5, 6, 7, 8, 13). We used a specification similar to the one developed by Greene and Villanueva to describe the investment variations (other models require more data than are available in this study). Domestic investment as a share of income (I_d/Y) is expected to be negatively related to the real interest rate (RI--ratio of nominal interest rate to CPI), which, as a measure of the user cost of capital, is negatively related to the inflation rate (CPI), positively related to the expected income growth (EY--which is lagged percentage change in real GDP), and negatively related to the presence of a large external debt burden (DT/X--ratio of external debt service to exports of goods and services).

The expected income growth and interest rates are included in the neoclassical investment models. The domestic inflation rate is included to account for the risk of long-term investment (5). High inflation creates macroeconomic instability and is usually considered an indicator of a government's inability to control macroeconomic policies. Such a situation tends to create a negative investment climate. Large external debt is considered a negative factor in reducing investment incentives because high debt-service payments reduce the availability of funds and lessen returns from investment (7). Based on the above discussion, domestic investment is expressed as follows:

$$I_d/Y = f(\ RI,\ CPI,\ EY,\ DT/X)$$

Finally, the real export growth rate (X_g) is expected to be a function of the growth rate of real export prices (P_x/P_m--export prices deflated by import prices, P_m), change in the exchange rate (EXR--nominal exchange rate divided by CPI), and growth in demand of the importing countries (Y_w--the real income growth in industrial countries is used as a proxy). Exports are expected to respond positively to growth in real world export prices. Changes in the world prices, however, may not be transmitted to the domestic market because of adjustment changes in the exchange rate or domestic policies related to prices. The effects of exchange rate movements (EXR), unlike those of price, affect the cost of imported inputs and raw materials, which are used to produce exported commodities. The export relationship is expressed functionally as follows:

$$X_g = f(\ Y_w,\ EXR,\ P_x/P_m)$$

Data from 1966 to 1987 were used to derive ordinary least squares estimates of these functions. The empirical results are:

(1) Income growth:

$$Y_g = -22.61 + 3.70\ L_g + .30\ X_g + .43\ I_d/Y + 1.17\ I_f/Y$$
$$\qquad\qquad (1.45) \quad (2.13)^* \quad (2.59)^* \quad (2.07)^*$$
$$R^2 = .56 \qquad SEE = 5.43$$

where Y_g is the real GDP growth in local currency, L_g is labor growth, X_g is growth in exports in local currency, I_d/Y is the ratio of investment from domestic resources to GDP, and I_f/Y is the ratio of foreign investment to GDP in local currency.

(2) Domestic investment:

$$I_d/Y = .60 - .04\ RI - .39\ CPI + .19\ EY + .01\ DT/X$$
$$\qquad\qquad (-4.37)^* \ (-1.20) \quad (3.51)^* \quad (1.50)$$
$$R^2 = .85 \qquad SEE = .06$$

where RI is the real interest rate, CPI is the measure of inflation rate, EY is the growth in GDP lagged 1 year in local currency, and DT/X is the ratio of debt service to exports.

(3) Exports:

$$X_g = -.13 + .03\ Y_w - .04\ EXR + .79\ P_x/P_m$$
$$\qquad\quad (2.05)^* \ (-.13) \quad (2.80)^*$$
$$R^2 = .41 \qquad SEE = .11$$

where Y_w is the index of economic growth in developed countries, EXR is change in the real exchange rate (the nominal exchange rate divided by CPI), and P_x/P_m is the growth of the index of the ratio of export unit values to import unit values.

In the income growth equation (1) the explanatory power of the variables was 0.56 percent. All four variables had the expected positive signs and three were significant at the 10-percent level. The significant variables are domestic and foreign investment and exports. These results confirm earlier studies that found that increases in domestic investment, foreign investment, and exports are essential for Zimbabwe to achieve sustained economic growth. The economic growth response to a change in the ratio of foreign investment to GDP was the highest, 1.17 percent. The increase in income related to changes in domestic investment and exports showed lower effects than the foreign investment, 0.43 and 0.30 percent respectively.

Total investment, relative to GDP, declined during the first half of the 1980's. Since then, the trend has been up, although it remains less than the average for 1980-82 because of the slow growth in both domestic and external funding. As a part of demand management policies, domestic credit declined during the mid-1980's. Foreign capital inflow also dropped, especially

during 1984-87 because of growing debt-service payments and the government's cautious debt management policy. The outlook for growth in investment is not clear. In 1989, the government announced new foreign investment policies, including a relaxation on the limits on dividend remittances abroad and the signing of bilateral investment guarantees.

The performance of domestic investment, with its strong effect on economic growth, is influenced by domestic policies. Factors with positive and significant effects on investment are a decline in interest rates and an improvement in income growth expectation (equation 2). An improvement in the performance of the economy enhances investors' confidence and declining interest rates reduce investment costs. Changes in inflation and the debt-service ratio to exports did not show a strong effect on domestic investment decisions (both variables were not significant).

An improvement in the export sector, in addition to having a direct positive effect on economic growth, is expected to ease financial constraints and increase imports of capital goods. This could make domestic investment more efficient. Real export growth showed a positive and significant response to demand growth in the industrial countries and also to growth in real export prices (equation 3). The effect of the exchange rate on exports was not significant, perhaps because of the short duration of the flexible exchange rate policy.

The future of external market conditions is uncertain. Growth in the industrial economies has been steady since 1982 but is expected to slow during 1990's. Zimbabwe's favorable terms of trade of the 1980's relative to the 1970's, a result of the removal of international sanctions (favorable import price), may not continue. Despite a price recovery from 1983-86, exporters of primary commodities, on average, suffered from terms of trade losses during the 1980's. According to the IMF's medium-term projections, real prices for nonfuel primary commodities will increase slightly during 1991-95 (12).

Zimbabwe's exports are highly diversified (equally distributed between agriculture, minerals, and manufactures), which provides an optimistic outlook for growth. However, if the current slow growth in exports persists (2.7 percent average annual growth from 1983 to 1988), the foreign exchange shortage, the binding constraint on past growth, will continue as a major impediment.

Zimbabwe's Government recently took a number of steps to promote exports (see Appendix). These steps included: increasing exchange rate flexibility, depreciating the real effective exchange rate, and allocating foreign exchange for the imports of capital goods and inputs, specifically for the agricultural and mining export industries. The government also initiated barter trade for selected commodities whose global demand was weak, including tobacco, corn, and asbestos. In 1987, barter trade was 5 percent of total exports. In 1988, the government established a bonus scheme of additional foreign exchange allocations for firms that increased their export earnings. Additional foreign

exchange, equal to 25 percent of the increase in the value of their manufactured exports, is provided to these firms to finance imported inputs.

Agricultural and Macroeconomic Policies

The social importance of the agricultural sector is far greater than its 8-16 percent share of GDP indicates. About 70 percent of the population live in rural areas and agriculture is their primary source of income. Any decline in agricultural performance, therefore, means a reduction in purchasing power of a large segment of the population; and consequently, a decline in consumer demand. Agriculture also provides inputs for Zimbabwe's agro-industries, which produce one-third of the country's exports. Agriculture's share of GDP declined from an average of 15 percent during 1968-81 to 11 percent in 1982-88. At the same time, the share of industry and manufacturing grew (table 3). Unfavorable weather during 1983-87 was the main reason for agriculture's decline.

Agriculture has always been at the center of Zimbabwe's planning and policy priorities. The sector is divided into commercial and communal subsectors. The commercial subsector operates with modern inputs on high-quality land and relatively labor-intensive systems. The communal sector consists largely of subsistence production using few modern inputs and labor-intensive techniques.

The objective of government intervention in agriculture is to reduce market instability and stabilize returns to the farmers. The government's Agricultural Marketing Authority (AMA) authorizes most intervention through commodity marketing boards. Tobacco is an exception because it is traded in the open market. Commodity marketing boards include the Grain Marketing Board (GMB), the Cold Storage Commission (CSC), the Dairy Marketing Board (DMB), and the Cotton Marketing Board (CMB). All of the boards operate as monopolies in purchasing, processing, selling, and exporting their commodities.

The Government Cabinet, with recommendations from the AMA and the Ministry of Agriculture, sets producer prices for beef, milk, corn, wheat, cotton, soybeans, and peanuts. There have been few changes in producer price policy since independence. (See Appendix for additional information on producer price policies.)

The private sector manages the inputs market. The primary sources of agricultural credit are commercial banks (45 percent of total credit in recent years) and the Agricultural Finance Corporation (40 percent of total credit). Large commercial farms are the primary users of this credit, with less than 15 percent going to small farms in recent years. The government is trying to increase credit to small farms. However, the lack of resources and inadequate management capacity remain major obstacles. (Input and credit policies are detailed in the Appendix.)

Table 3--Zimbabwe: Gross domestic product by sector

Year 1/	Agriculture	Industry	Services	Other
		Percent		
1968	14.7	32.0	46.0	7.3
1969	17.0	32.2	44.1	6.8
1970	14.2	34.0	45.5	6.3
1971	16.1	33.4	44.5	6.1
1972	16.5	34.2	43.5	5.8
1973	13.8	36.6	42.9	6.6
1974	16.9	36.6	42.7	3.8
1975	16.2	36.1	42.9	4.8
1976	16.2	35.9	43.3	4.7
1977	15.2	34.1	44.9	5.9
1978	12.2	33.9	49.5	4.4
1979	11.4	35.9	46.6	6.1
1980	13.1	36.3	44.3	6.3
1981	14.4	33.5	43.4	8.7
1982	12.9	31.0	45.7	10.4
1983	8.7	36.7	40.5	14.0
1984	11.6	33.3	43.3	11.8
1985	13.7	36.3	39.5	10.6
1986	12.2	37.1	39.8	10.9
1987	9.7	38.8	40.9	10.5
1988	11.0	37.0	40.0	12.0
Average:				
1968-81	14.8	34.6	44.6	6.0
1982-88	11.4	35.8	41.4	11.5

1/ 1988 shares estimated.
Source: (24).

The growth in total agricultural production was about 3.5 percent per year during 1980-88, an increase of 0.5 percent on a per capita level (table 4). The performance of the agricultural sector is highly correlated to rainfall, and over the past decade, Zimbabwe has experienced major production fluctuations due to the weather. For instance, the coefficient of variation for cereal production is 27 percent, with recorded shortfalls of 60 percent from the production trend. Based on 1966-88 data, droughts occur about once every 3 years. Weather-related production variations often mask the effect of incentive policies. Weather also increases government costs and hampers effective production planning.

Table 4--Zimbabwe: Agricultural performance indicators

Performance indicators	Base period 1980-82	1983	1984	1985	1986	1987	1988
				1979-81 = 100			
Index of agricultural production	100	85	102	130	126	107	134
				1,000 tons			
Production:							
Corn	2,104	884	1,400	2,952	2,545	1,132	2,229
Wheat	192	124	100	205	225	214	257
Seed cotton	155	147	247	295	252	233	319
Tobacco	93	94	125	109	117	119	120
				1,000 hectares			
Area:							
Corn	1,330	1,322	1,356	1,429	1,314	1,211	1,236
Wheat	38	23	17	42	46	42	47
Seed cotton	108	133	180	210	243	273	260
Tobacco	50	48	57	62	68	62	63
				Tons per hectare			
Yield:							
Corn	1.58	.67	1.03	2.07	1.94	0.93	1.80
Wheat	5.11	5.39	5.88	4.88	4.89	5.10	5.47
Seed cotton	1.43	1.11	1.37	1.40	1.04	0.85	1.23
Tobacco	1.84	1.96	2.19	1.75	1.72	1.92	1.90
				Growth rate over previous year			
				Percent			
Production:							
Corn	NA	-50.5	58.4	110.9	-13.8	-55.5	96.9
Wheat	NA	-41.8	-19.4	105.0	9.8	-4.9	20.1
Seed cotton	NA	8.9	68.0	19.4	-14.6	-7.5	36.9
Tobacco	NA	5.6	32.8	-12.9	7.5	1.8	0.8
Area:							
Corn	NA	-6.0	2.6	5.4	-8.0	-7.8	2.1
Wheat	NA	-37.8	-26.1	147.1	9.5	-8.7	11.9
Seed cotton	NA	22.0	35.3	16.7	15.7	12.3	-4.8
Tobacco	NA	2.1	18.8	8.8	9.7	-8.8	1.6
Yield:							
Corn	NA	-47.3	54.4	100.1	-6.2	-51.7	92.9
Wheat	NA	-6.3	9.1	-17.0	0.2	4.2	7.3
Seed cotton	NA	-10.8	24.2	2.4	-26.2	-17.7	43.8
Tobacco	NA	3.4	11.8	-19.9	-1.9	11.6	-0.8

NA = Not applicable.
Sources: (23 and 25).

The significance of weather variability on agriculture was tested by calculating an aggregate index of agricultural production growth regressed against a dummy variable (D) representing the drought years and a time trend (T) representing all other factors, such as population and technological change. The dummy variable was 1 for 1968, 1980, 1981, 1983, and 1984, and zero

otherwise. The estimated equation is based on 1966-88 data, using a linear functional form. The empirical results are:

$$PRDI = 64.16 + 2.89\ T - 16.51\ D$$
$$(13.65)^*\quad (-6.05)^*\quad R^2=.91\quad SE = 5.65$$

The explanatory power of the variables was 91 percent of the production variation, with weather having a significant negative effect and the time trend was positive and significant.

Evaluation of Aggregate Policies on Agriculture

Evaluating the effect of macroeconomic policies on Zimbabwe's agricultural sector is very complicated because the directions of national and sectoral policies are not always consistent. For example, policies to boost production of traditional commodities, coupled with policies to diversify exports, can lead to conflicting signals and the results may not show much measurable change on the aggregate level. This section reviews direct government policies, compares the flow of investment into the agricultural sector, evaluates the direction of policy changes and their expected effect on commodity groups, and for selected commodities, analyzes the effect of government policies on producer incentives and consumer costs.

The effect of policy changes at the aggregate level is limited because aggregate output can only grow if more resources are allocated to agriculture or if the technology changes. During the 1980's, increased resource flows to agriculture, particularly to small farms, were constrained by capital shortages that limited investment and by the lack of imported inputs (machinery). The agricultural portion of investment (agricultural gross fixed capital formation) as a share of total domestic investment declined through time from an average of 11 percent in 1968-81 to 9 percent in 1982-86. The growth of agricultural investment was lower in the 1980's than in the earlier period, 5 percent per year during the 1982-86 period, compared with 13 percent in the 1970-82 period (table 5). In real terms, agricultural investment declined sharply, 10 percent per year in 1982-86, compared with a 6-percent increase in the earlier period.

The performance of the agricultural sector followed the performances of investment in agriculture. The growth in the real value of the agricultural sector averaged 4 percent per year during 1970-82 and 3 percent per year during 1982-86. The highest level of real agricultural investment and public investment was 24 percent in 1982. It declined to 8.5 percent by 1986 because of the pressure to reduce budget deficits and the government's inability to cutback public consumption expenditures.

Evaluation of Subsectoral Policies

The effect of macroeconomic and sectoral policy changes is expected to be larger for commodity groups than for agriculture

Table 5--Zimbabwe: Investment in agriculture

Year	Agriculture production index	Value of agricultural production		Consumer Price Index	Agric. investment	Total investment	Agric. investment	Share of investment	
								Agric.	Public
	1979-81=100	Million Z$	Constant Z$	1980=100	Constant Z$	----Million Z$----		------Percent-----	
1970	69.3	153	316	48.4	48	456	23	5.0	21.3
1971	91.4	200	401	49.9	58	405	29	7.2	17.6
1972	106.1	234	456	51.3	60	559	31	5.6	19.4
1973	83.8	215	406	52.9	59	520	31	6.0	21.3
1974	103.4	315	559	56.4	73	508	41	8.1	7.3
1975	98.5	323	520	62.1	61	439	38	8.7	7.9
1976	110.1	350	508	68.9	74	360	51	14.2	11.8
1977	104.5	334	439	76.0	59	337	45	13.3	11.1
1978	104.9	289	360	80.3	52	432	42	9.7	4.8
1979	92.9	321	338	94.9	46	551	44	8.0	4.5
1980	98.0	451	451	100.0	53	534	53	9.9	3.8
1981	108.9	640	565	113.2	80	360	91	25.3	5.5
1982	98.7	669	534	125.3	93	404	116	28.7	24.1
1983	84.4	554	360	154.1	62	518	96	18.5	15.6
1984	99.3	748	404	185.2	49	470	90	19.1	13.3
1985	125.1	1,039	517	200.9	37	367	74	20.2	12.2
1986	123.9	1,080	470	229.7	62	518	142	27.4	8.5
	----------Percent----------							-----Average-----	
Growth rate:									
1970-82	2.9	12.3	4.4	NA	5.6	NA	13.5	11.5	12.3
1982-86	5.7	12.0	-3.2	NA	-10.1	NA	5.1	22.8	14.7

NA = Not applicable.
Source: (24).

as a whole because of substitution among crops. The lack of detailed data, however, limits the analysis. The direction of policy changes and their expected impact on different commodity groups are shown in table 6. The commodities are grouped into exports (tobacco and others), imports, and nontraded commodities. The types of domestic policies are grouped into macroeconomic and direct sectoral policies. The indicator of external factors is world prices (the country is a price taker in the world market).

Among the key macroeconomic policies, exchange rate devaluation is expected to have a positive direct impact only on tobacco, which is traded in the open market. The final incentive to tobacco producers, however, depends on the international price. Tobacco is the main agricultural export commodity. Zimbabwe is one of the world's major tobacco producers and exports more than 95 percent of its output. Domestic consumption consequently has little influence on overall production trends. The future of the tobacco sector depends heavily on its ability to remain competitive in world markets. The industry receives no assistance from the government. Flue-cured tobacco has traditionally been produced on large-scale commercial farms (23). Since independence, the government has encouraged the production of flue-cured tobacco by small-scale commercial farmers and those resettled on newly acquired land. Zimbabwe has established a

Table 6--Zimbabwe: Effect of policy changes on commodity groups, 1980-88

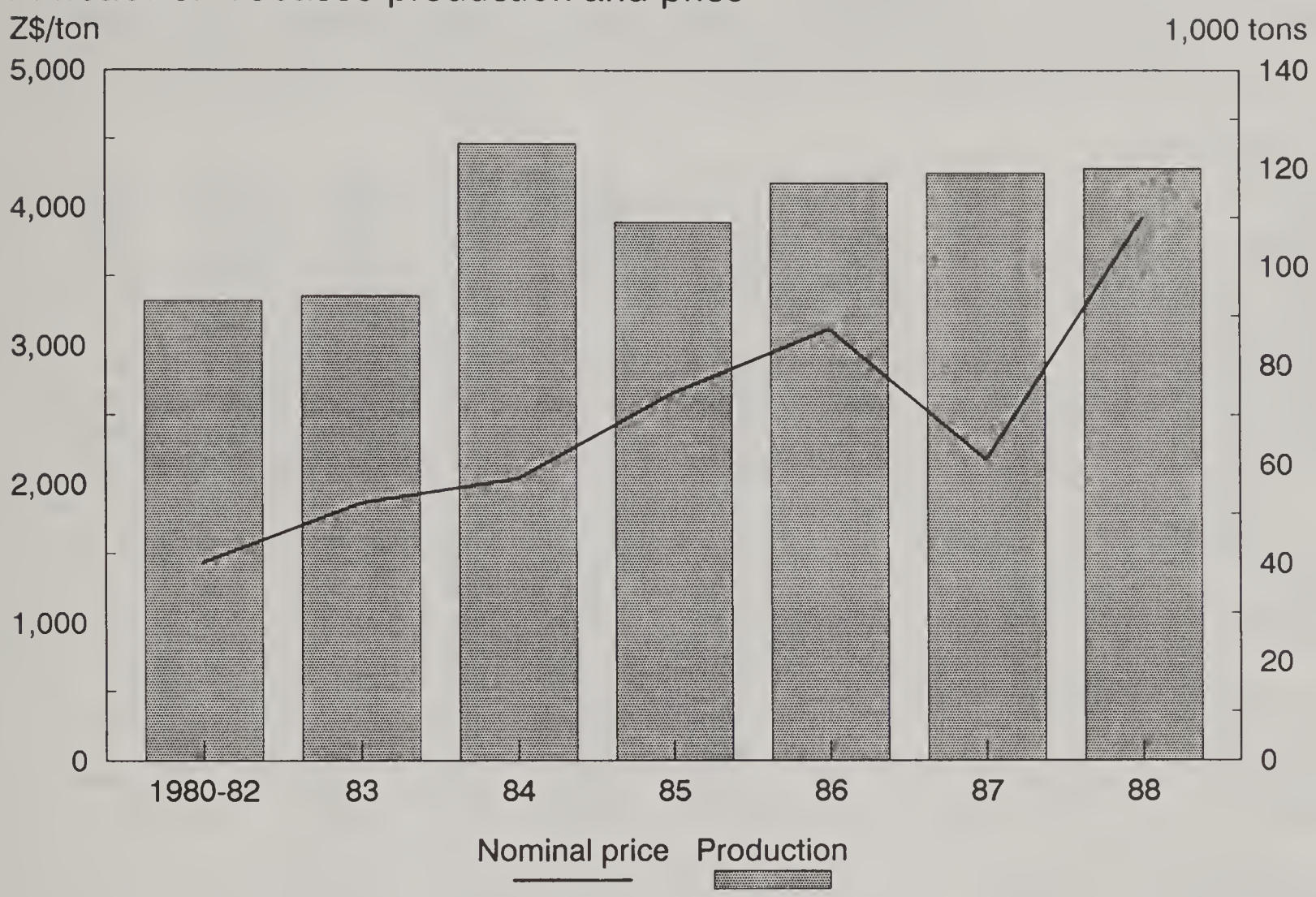
Policy area	Agricultural products				Inputs	
	Tobacco	Exports	Imports	Non-traded	Imported	Domestic
Macroeconomic policies:						
Exchange rate	+	o	-	o	-	+
Fiscal/monetary	-	-	o	-	o	-
Domestic policies:						
Taxes/price	o	o	-	o	-	o
Investment	-	-	o	-	-	-
Sectoral policies:						
Import controls	?	?	-	+	-	+
Credit policy	o	o	o	+	o	o
Price support	o	+	o	+	o	o
Extension/ technology	+	+	o	+	+	+
Possible net incentives	+	+small	-	+	o	+
External factors	+	-	-	o	-	+
Total possible net incentives	+	-	-	+	-	+
Performance	+small	-	-	+small	-	+

reputation for its research and quality tobacco production. The industry adjusted and survived through the challenging environment of international sanctions, weather variability, changes in smoker preferences, and health warnings. After independence, production almost doubled, reaching a peak of 125,000 tons in 1984. Since then, output has declined. Both drought and very wet weather adversely affected output during the 1985-88 period (fig. 1).

For other commodities, the direct effect of macroeconomic policies is limited because most prices are set by the government. However, the indirect effect of trade policies could affect other crops. For example, Zimbabwe's import substitution policy is expected to improve food production incentives, while exchange rate devaluation indirectly reduces the prices of non-exported food crops relative to export crops.

The effect of fiscal policies (growing fiscal deficits and domestic borrowing) and monetary policies (an increase in the ratio of money supply to GDP) is expected to be negative because of the decline in investment from domestic resources and an

Figure 1



increase in the rate of inflation. A decline in domestic demand, which tends to follow contractionary adjustment policies, is expected to have a negative effect especially on food crops. In the area of general tax and pricing policies, there have been few changes except for increased tariffs on imported commodities.

The effects of direct sectoral policies were generally positive. However, the consequences of import restrictions on the export sector are unclear. Import substitution policies could shift resources from the export sector to the output of commodities for domestic use.

In order to maintain self-sufficiency, the Zimbabwean Government supports food crops by providing price stability and nonprice incentives. The government raised incentives and provided extension and marketing services in an effort to stimulate productivity in the communal sector. Output of commercially produced commodities such as corn and wheat showed steady growth (table 7). In the communal sector, production of sorghum, sunflower seed, soybeans, and peanuts rose sharply from 1980-82, in response to improved price incentives, ranging from a 35-percent growth to as much as 600 percent.

Marketing boards play an important role in improving agricultural output, but their increased activities are accompanied by higher

Table 7--Zimbabwe: Commodity response to improved price incentives

Agricultural policy response	Base period 1980-82	1983	1984	1985	1986	1987	1988
				Z$/ton			
Real producer prices:							
White corn	96.0	77.9	75.6	89.6	78.4	69.7	70.5
Wheat	144.8	142.8	135.0	141.9	130.6	127.8	132.0
Seed cotton	381.1	334.2	307.8	333.5	326.5	309.7	307.3
Tobacco	1,272.8	1,210.6	1,101.6	1,324.0	1,359.3	844.9	1,420.4
Nominal producer prices:							
White corn	108.3	120.0	140.0	180.0	180.0	180.0	195.0
Wheat	163.3	220.0	250.0	285.0	300.0	330.0	365.0
Seed cotton	430.0	515.0	570.0	670.0	750.0	800.0	850.0
Tobacco 1/	1,436.2	1,865.5	2,040.1	2,659.9	3,122.3	2,182.5	3,928.8
Ratio of producer price to world price:							
White corn	1.23	0.81	0.94	1.11	1.46	1.14	1.11
Wheat	1.38	1.42	1.34	1.34	1.63	1.66	1.23
Seed cotton	1.12	0.97	0.77	0.81	1.26	1.16	0.92
Change in production/change in price:							
White corn	NA	2.7	-20.0	6.0	1.1	5.0	83.1
Wheat	NA	30.4	3.6	20.6	-1.2	2.2	6.1
Seed cotton	NA	-0.7	-8.6	2.3	7.0	1.5	-47.3
Tobacco	NA	-1.1	-3.6	-0.6	2.8	0.0	0.0
Change in area/change in price:							
White corn	NA	0.0	-0.9	0.3	0.6	0.7	1.8
Wheat	NA	28.3	4.8	28.9	-1.2	4.0	3.6
Seed cotton	NA	-1.9	-4.5	2.0	-7.5	-2.4	6.1
Tobacco	NA	0.9	-2.1	0.4	3.6	0.2	0.0

NA = Not applicable.
1/ Auction price.
Sources: (11, 23, 25)

administrative costs and rising budget deficits. From 1982 to 1988, the combined operating deficits of the agricultural marketing boards were 30 to 50 percent of the total operating costs of Zimbabwe's public enterprises. The government is currently focusing on improving the marketing system and reducing its costs. An alternative, and possibly complementary system, is to strengthen the role of cooperatives. Cooperatives already provide a wide range of services, including supplying inputs and marketing commodities. The number of cooperatives has rapidly increased; they currently serve about 40 percent of smallholder farmers. Although cooperatives seem efficient, they suffer from limited resources and inadequate management.

With the exception of tobacco, the expected positive aggregate effect of domestic policies was hampered by the negative effect of declining world prices for exports. The downward trend in international prices (external factor) for agricultural

commodities was positive for agricultural imports (reduced the import costs). For non-exported commodities, the direction of domestic policies was positive and the decline in world prices did not have much impact on producer incentives. The aggregate performance followed the path of incentive signals, with a declining trend in exports and a positive trend for non-exported commodities.

Evaluation of Commodity Policies

The direct effect of policies on individual commodities is even more difficult to evaluate than their effect on agriculture as a whole. Commodity response varies depending on the infrastructure of the market. In the case of Zimbabwe, the policy effect on the individual commodity depends on whether the commodity is produced by communal farmers or by commercial farmers. Another difficulty is differentiating between the shift in supply induced by price changes and the shift induced by nonprice factors, especially when price is the only data available.

For selected commodities, we have attempted to assess the effect of government policies on producer incentives and consumer costs. The measure used for this was Producer Subsidy Equivalents (PSE's) and Consumer Subsidy Equivalents (CSE's). PSE's and CSE's are used to evaluate the subsidies or taxes associated with government intervention (22). PSE's and CSE's estimate the magnitude of the effects of measurable policies utilized by a country in a given year and over time (1982-89). The goal in estimating PSE's and CSE's is to measure the direct or indirect effects of policies on producer and consumer incentives for a particular commodity. This is done by estimating the "wedge" between domestic and world reference prices and the budget costs associated with particular policies. Positive PSE's indicate that a government is subsidizing producers. A negative PSE indicates a tax on producers. CSE's provide a similar measure for consumers (the policy impacts are the opposite of the PSE's). The commodities considered are: corn and cotton (exports), wheat (import), and sorghum (not traded).

Corn is the main grain consumed in Zimbabwe. Since 1965, the government has sought simultaneously to conserve foreign exchange and target food security by promoting corn self-sufficiency. The droughts in 1983, 1984, and 1987 significantly reduced agricultural output and increased imports. Corn production and exports followed this pattern. Weak world demand for corn and the self-sufficiency policies of neighboring countries have led Zimbabwe to limit corn output to meet domestic requirements and to diversify to other crops, particularly more readily exportable crops.

Corn producer prices were based on domestic production costs until 1988. The 1985/86 bumper crop led to substantial increases in Grain Marketing Board (GMB) costs for crop storage, in addition to the expense of purchasing such a large crop from smallholder farmers. In 1986 and 1987, corn prices were held unchanged from the previous year to reduce corn output and

stocks. This was also an effort to diversify production. In 1987, the combination of constant prices and drought reduced the corn crop by 56 percent (see table 4). However, in 1988, prices were raised to stimulate output and increase stocks, so as to offset the effects of 1987 drought (fig. 2) (23).

Wheat is the second major cereal crop in Zimbabwe. Wheat is produced on irrigated land and on commercial farms. It is still affected by weather (a reduction in stored water in one season reduces the wheat area in the following season). Wheat output has recently risen moderately, due in part to increased wheat prices relative to corn (fig. 3). Other food crops also show positive growth, although most are produced in drier areas, on small farms in the communal sector.

Both commercial and peasant farmers produce sorghum. Large commercial farmers mainly produce red sorghum, which is used in the brewing industry to produce beer. Peasant farmers produce white sorghum, which is milled and blended with wheat for domestic consumption. Sorghum production declined during the 1980's because of drought and slow demand growth for red sorghum.

Figure 2

Zimbabwe: Corn production and producer prices

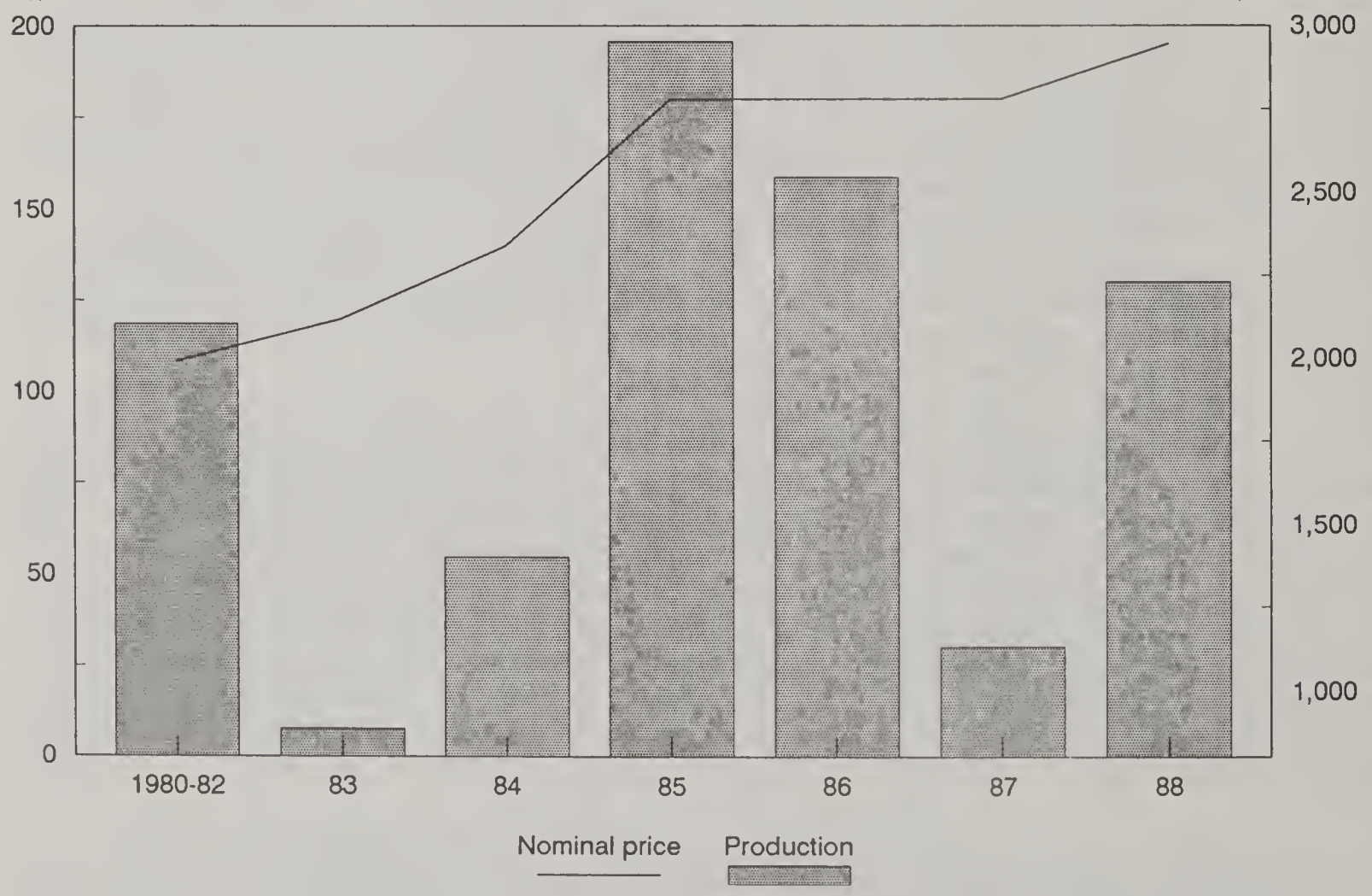
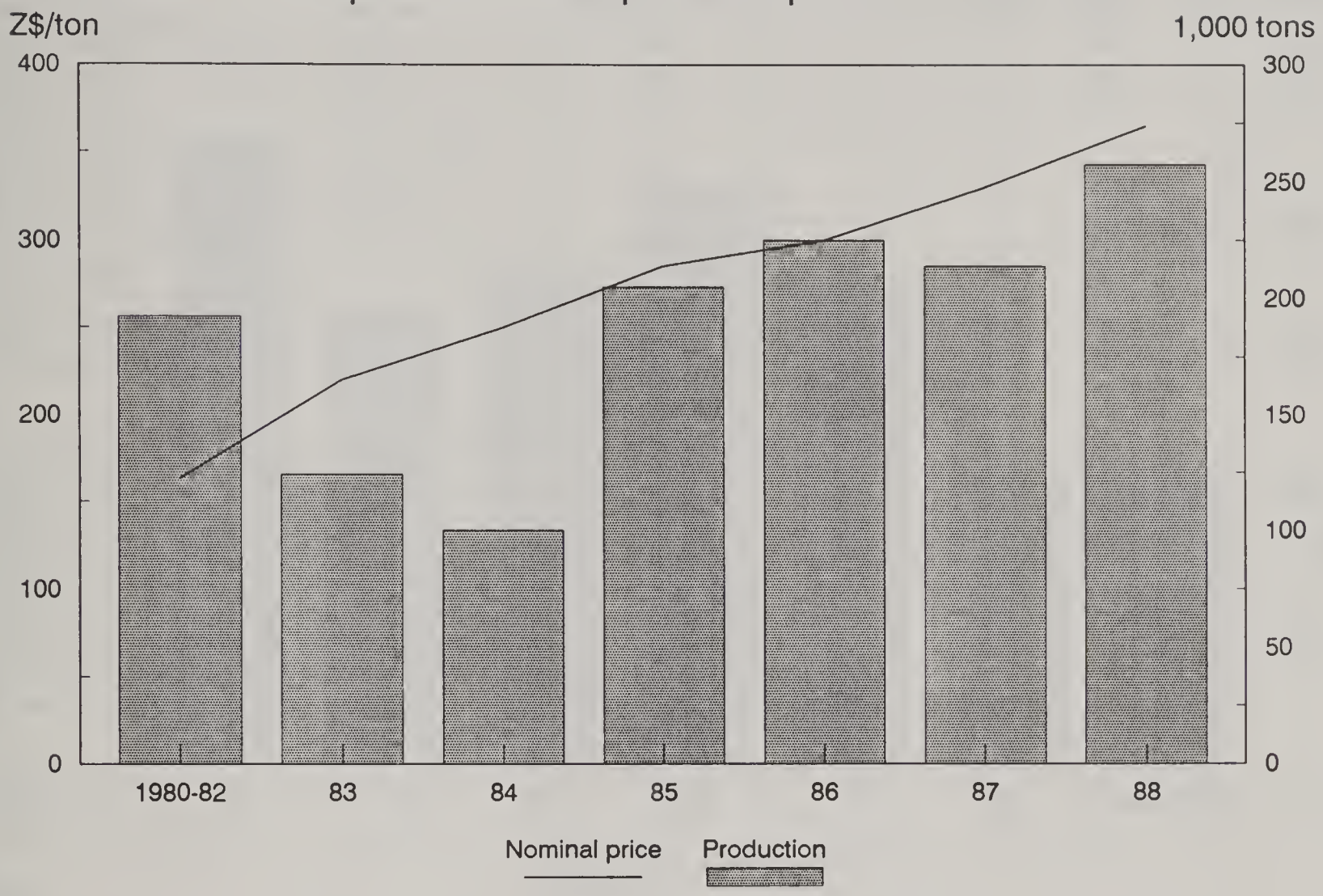


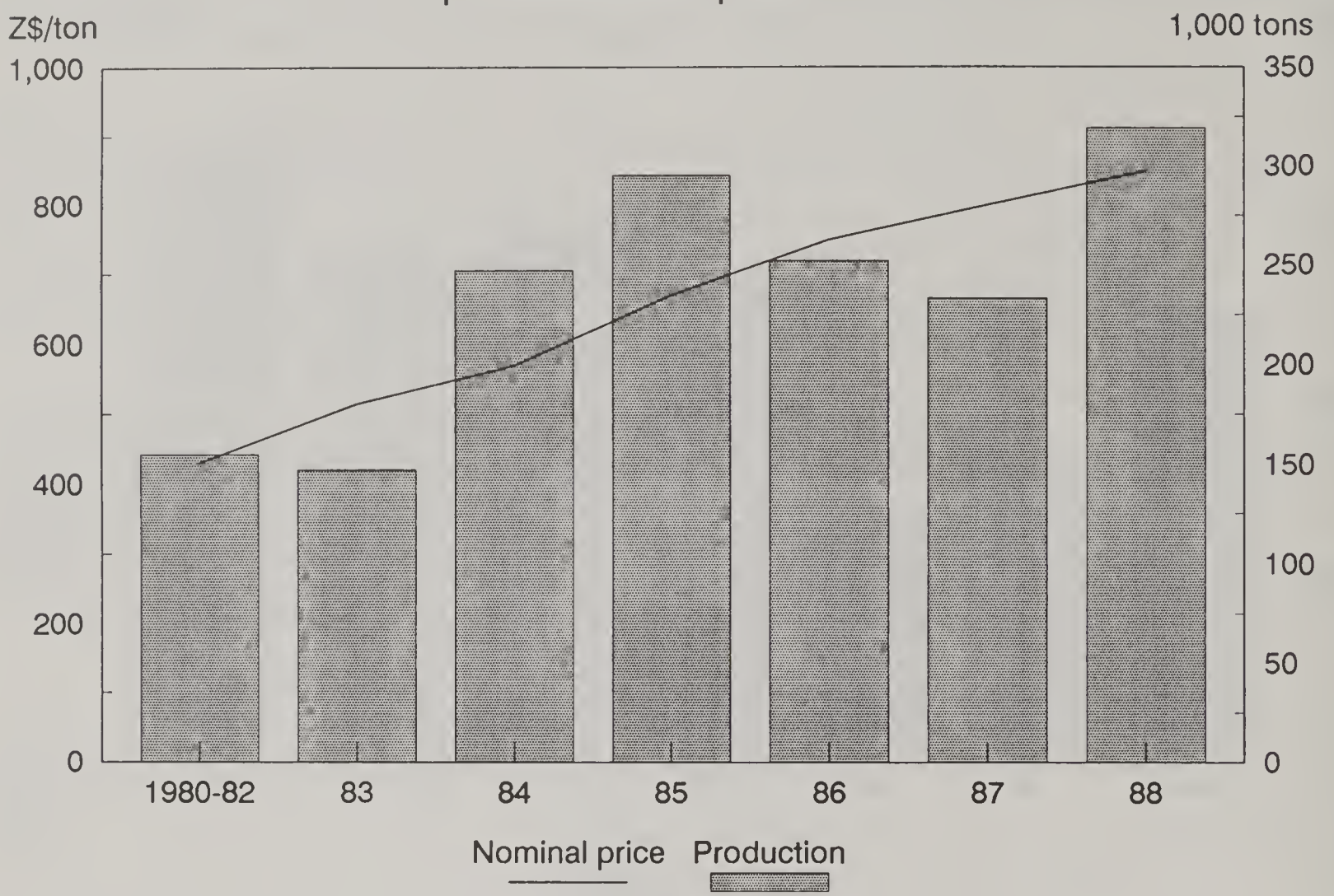
Figure 3



Cotton is a major commodity produced for both domestic consumption and exports (fig. 4). The short-staple variety comprises about one-half of total output and is used domestically, while the long-staple variety commands a premium on the international market. Government policy is to promote cotton production and exports to generate foreign currency, while fostering the development of the communal sector. The production of short-staple cotton increased during the 1980's, primarily in the communal areas. Long-staple cotton is produced by commercial farmers with about one-half of the output coming from irrigated land (23). Most cotton is hand picked because labor is cheap and plentiful. An increase in labor costs could significantly reduce the profitability of cotton. In 1980, the government's minimum wage policy was applied to the agricultural sector for the first time. After an initial rapid increase, minimum wages have not changed in real terms since 1983.

The three principal policies affecting the selected commodities during the study period are producer and consumer prices (set by the government), marketing costs (carried by the marketing boards), and exchange rates (not agricultural specific but affects trade). Although the Zimbabwe dollar is periodically adjusted, it does not float freely, and the government maintains control over the adjustment rates. Several policies are not included, such as publicly funded extension, research, and

Figure 4



investment. The effect of a credit policy is also difficult to measure. Credit is controlled and allocated, but the government has no direct subsidy policy for interest rates. The effect of monetary and fiscal policies is indirect and the only way to capture their effect is through the inflation rate.

The government's exchange rate policy has been heavily criticized. To measure the exchange rate distortion factor, the official rate was adjusted by the index of real effective exchange rate (REER is the nominal exchange rate, adjusted by the ratio of domestic price level to the average of the trading partners' price level) (9). The adjusted exchange rate is the official rate in 1988, as the base year (assuming the 1988 rate is undistorted), adjusted by the index of REER. The difference between the adjusted and the official rate represents the distortion due to the exchange rate policy.

A summary of PSE's and CSE's by commodities is shown in tables 8 and 9. The results of per unit quantity of PSE's indicate annual variations in tax and subsidy by commodity. The trend in the PSE's for all commodities showed a decline in producer taxes during 1982-89. The commodity range for PSE's was from 61-percent tax per unit of production (corn in 1983) to 23-percent subsidy (corn and sorghum in 1986 and wheat in 1987). The

Table 8--Zimbabwe's producer subsidy equivalents (PSE's)

PSE's	Units	1982	1983	1984	1985	1986	1987	1988	1989
Wheat:									
Level of production	1,000 tons	213	124	99	206	248	215	227	274
Producer price	Z$/ton	190	220	250	285	300	330	365	400
Producer price + GMB costs	Z$/ton	219	253	279	329	377	424	478	537
Border price	Z$/ton	190	258	305	303	378	326	480	552
Border price, adj. ex. rate	Z$/ton	263	315	317	279	379	347	500	552
Value to producers	Million Z$	40	27	25	59	74	71	83	110
Total policy transfers	Million Z$	-9	-8	-4	10	-1	17	-5	-4
PSE (per unit value)	Percent	-23	-28	-15	18	-1	23	-6	-4
PSE (per unit quantity)	Z$/ton	-44	-62	-38	50	-2	77	-21	-15
Price ratios--									
Border/producer + GMB costs	Percent	87	102	109	92	100	77	100	103
Ex. rate adj./producer	Percent	120	125	114	85	101	82	105	103
Corn:									
Level of production	1,000 tons	1,786	884	1,348	2,960	2,546	1,093	2,229	1,931
Producer price	Z$/ton	120	120	140	180	180	180	195	215
Producer price + GMB costs	Z$/ton	151	150	184	255	257	243	276	295
Border price	Z$/ton	135	241	281	253	199	237	245	259
Border price, adj. ex. rate	Z$/ton	184	296	293	236	200	252	256	259
Value to producers	Million Z$	214	106	189	533	458	197	435	415
Total policy transfers	Million Z$	-60	-129	-147	58	144	-9	45	69
PSE (per unit value)	Percent	-28	-121	-78	11	32	-5	10	17
PSE (per unit quantity)	Z$/ton	-34	-146	-109	20	57	-9	20	36
Price ratios--									
Border/producer + GMB costs	Percent	89	161	153	99	77	98	89	88
Ex. rate adj./producer	Percent	122	197	159	93	78	104	93	88
Sorghum:									
Level of production	1,000 tons	67	52	56	133	131	98	176	81
Producer price	Z$/ton	115	120	140	180	180	180	195	215
Producer price + GMB costs	Z$/ton	145	152	178	261	350	319	340	365
Border price	Z$/ton	158	233	267	305	271	250	368	437
Border price, adj. ex. rate	Z$/ton	214	282	278	285	271	264	381	437
Value to producers	Million Z$	8	6	8	24	24	18	34	17
Total policy transfers	Million Z$	-5	-7	-6	-3	10	5	-7	-6
PSE (per unit value)	Percent	-60	-109	-71	-14	44	30	-21	-34
PSE (per unit quantity)	Z$/ton	-69	-131	-99	-24	79	55	-41	-72
Price ratios--									
Border/producer + GMB costs	Percent	109	153	150	117	77	78	108	120
Ex. rate adj./producer	Percent	148	186	156	109	77	83	112	120
Cotton lint:									
Level of production	1,000 tons	56	60	92	105	89	87	117	94
Producer price	Z$/ton	1,390	1,390	1,543	1,821	2,007	2,057	2,224	2,502
Producer price + GMB costs	Z$/ton	1,520	1,553	1,688	1,967	2,172	2,243	2,437	2,743
Border price	Z$/ton	1,415	1,890	2,537	2,287	1,877	2,477	2,990	3,361
Border price, adj. ex. rate	Z$/ton	1,894	2,320	2,665	2,068	1,883	2,679	3,150	3,361
Value to producers	Million Z$	78	83	141	190	179	179	261	236
Total policy transfers	Million Z$	-21	-46	-89	-11	26	-38	-84	-58
PSE (per unit value)	Percent	-27	-55	-63	-6	14	-21	-32	-25
PSE (per unit quantity)	Z$/ton	-374	-767	-977	-101	289	-436	-713	-618
Price ratios--									
Border/producer + GMB costs	Percent	93	122	150	116	86	110	123	123
Ex. rate adj./producer	Percent	125	149	158	105	87	119	129	123

Source: (21).

Table 9--Zimbabwe's consumer subsidy equivalents (CSE's)

CSE's	Units	1982	1983	1984	1985	1986	1987	1988	1989
Wheat:									
Level of consumption	1,000 tons	234	227	220	242	251	271	287	347
Wholesale price	Z$/ton	169	239	285	324	358	378	426	500
Border price	Z$/ton	190	258	305	303	378	326	480	552
Border price, adj. ex. rate	Z$/ton	263	315	317	279	379	347	500	552
Cost to consumers	Million Z$	40	54	63	78	90	102	122	174
Total policy transfers	Million Z$	22	17	7	-11	5	-9	21	18
CSE (per unit value)	Percent	56	32	11	-14	6	-8	17	10
CSE (per unit quantity)	Z$/ton	94	76	32	-45	21	-31	74	52
Price ratios--									
Border/wholesale price	Percent	112	108	107	94	106	86	113	110
Ex. rate adj./wholesale price	Percent	156	132	111	86	106	92	118	110
Corn:									
Level of consumption	1,000 tons	1,460	1,543	1,279	1,710	1,671	1,790	1,591	1,520
Wholesale price	Z$/ton	137	157	177	222	222	222	245	285
Border price	Z$/ton	135	241	281	253	199	237	245	259
Border price, adj. ex. rate	Z$/ton	184	296	293	236	200	252	256	259
Cost to consumers	Million Z$	200	242	226	380	371	397	390	433
Total policy transfers	Million Z$	69	214	149	23	-37	54	17	-39
CSE (per unit value)	Percent	34	88	66	6	-10	14	4	-9
CSE (per unit quantity)	Z$/ton	47	139	116	14	-22	30	11	-26
Price ratios--									
Border/wholesale price	Percent	99	154	159	114	90	107	100	91
Ex. rate adj./wholesale price	Percent	134	189	166	106	90	114	104	91
Sorghum:									
Level of consumption	1,000 tons	71	66	49	75	83	118	170	98
Wholesale price	Z$/ton	110	139	165	239	239	239	282	282
Border price	Z$/ton	158	233	267	305	271	250	368	437
Border price, adj. ex. rate	Z$/ton	214	282	278	285	271	264	381	437
Cost to consumers	Million Z$	8	9	8	18	20	28	48	28
Total policy transfers	Million Z$	7	9	6	3	3	3	17	15
CSE (per unit value)	Percent	95	103	68	19	14	11	35	55
CSE (per unit quantity)	Z$/ton	104	143	113	46	32	25	99	155
Price ratios--									
Border/wholesale price	Percent	144	168	162	128	113	105	131	155
Ex. rate adj./wholesale price	Percent	195	203	168	119	113	110	135	155
Cotton:									
Level of consumption	1,000 tons	12	11	22	24	27	29	31	40
Wholesale price	Z$/ton	1,180	1,310	1,596	1,668	1,647	1,639	1,639	1,884
Border price	Z$/ton	1,415	1,890	2,537	2,287	1,877	2,477	2,990	3,361
Border price, adj. ex. rate	Z$/ton	1,894	2,320	2,665	2,068	1,883	2,679	3,150	3,361
Cost to consumers	Million Z$	14	14	36	40	44	48	50	76
Total policy transfers	Million Z$	9	11	24	10	6	30	47	60
CSE (per unit value)	Percent	61	77	67	24	14	63	92	78
CSE (per unit quantity)	Z$/ton	714	1,010	1,069	400	236	1,040	1,511	1,477
Price ratios--									
Border/wholesale price	Percent	120	144	159	137	114	151	182	178
Ex. rate adj./wholesale price	Percent	161	177	167	124	114	163	192	178

Source: (21).

average effect of PSE's was to tax corn, sorghum, and cotton and to subsidize wheat, keeping both taxes and subsidies small. On average, cotton was taxed the highest, 15 percent; followed by sorghum, 14 percent; and corn 7 percent (figs. 5-7). The average subsidy for wheat was 4 percent (fig. 8). When the exchange rate bias was introduced, the average tax increased by about 9 percent for all commodities (for example, the 4-percent average subsidy for wheat producers was changed to a 4-percent tax).

The review of the per unit of production PSE's on the commodity basis did not show any particular trend. The level of domestic prices seemed to follow the trends in reference prices. But on an annual basis, volatile world prices and stable domestic prices led to annual variability in the PSE's.

The per unit of consumption CSE's showed a declining trend for all commodities, thus indicating a decline on the overall consumer subsidies. The size and the trend of subsidies varied by commodity. On average, however, for all commodities, CSE's per unit of consumption was positive. Cotton had the highest average subsidy at 48 percent, followed by sorghum, 38 percent; corn, 14 percent; and wheat, only 5 percent (figs. 9-12). When the exchange rate bias is included in the calculation, the average subsidy rates increased by 11 percent for all commodities. Cotton and sorghum, the two commodities with the highest CSE's, are used in the processing industry and are not a direct subsidy to consumers. Government policy is to increase the productivity of the industrial sector by raising their incentives to increase production for export.

Over time, consumer subsidies declined for corn (the main staple food) and wheat. For sorghum, the trend is not clear because of the large annual variability in CSE's. And, for cotton, subsidies increased during 1982-89. When the adjusted exchange rate is used, the results showed higher average subsidies for all commodities and a higher rate of decline in trend subsidies for corn and wheat. The declining trend in consumer subsidy is also detectable for sorghum. Only the cotton consumer subsidy shows an upward trend.

The analysis of commodity policies indicates a general declining trend in taxing producers and subsidizing consumers. However, the effect of this policy trend on production has been limited, at least in the short term. Table 7 displays a wide range of production/price ratios for the major crops (the annual percent changes in the production of crops relative to 1-year lag changes in real producer prices). To accentuate the effect of nonprice factors, the price elasticities for corn and wheat (corn 0.36 and wheat 0.34, estimates based on 1966-83 data reference) were used to estimate the expected production for the 1983-88 period. Figure 13 shows the substantial variations of actual and estimated output for corn. This reveals that other factors, particularly weather, tend to dominate short-term production/price relationships. In the long run, price incentives and other factors, such as changes in technologies and investment, are the key determinants of production performance.

Figure 5

Zimbabwe: Cotton producer subsidy equivalents

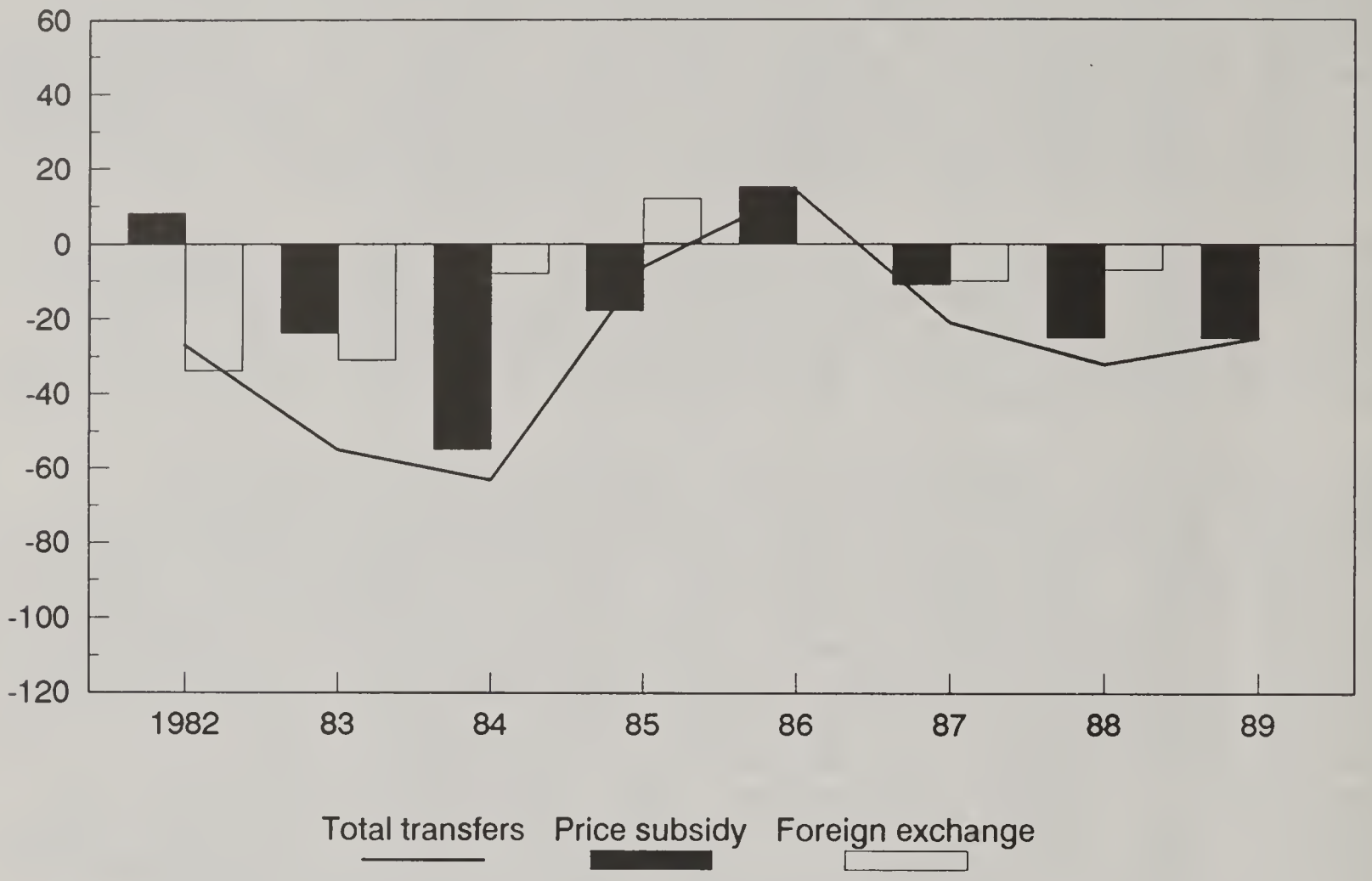


Figure 6

Zimbabwe: Sorghum producer subsidy equivalents

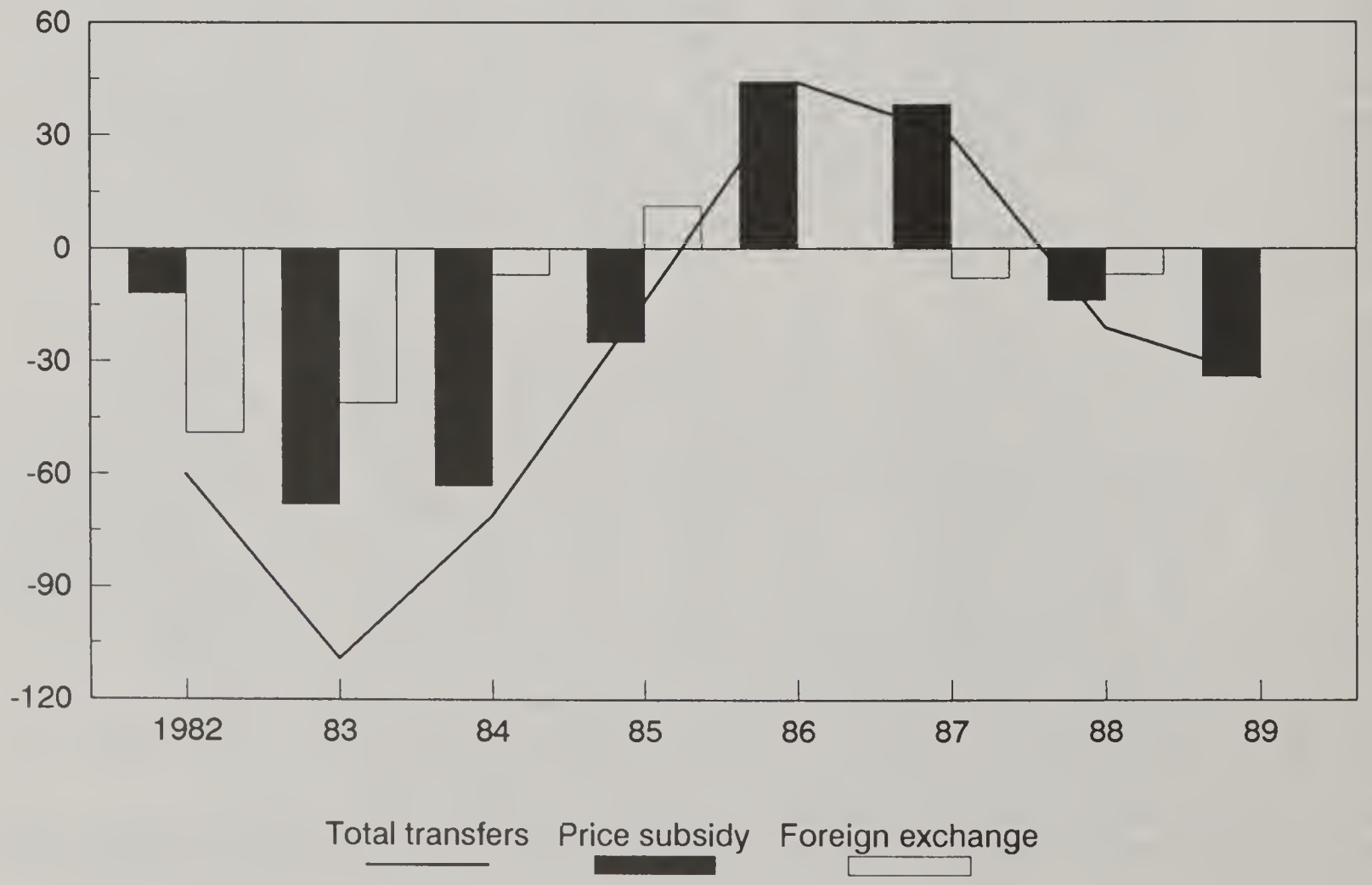


Figure 7

Zimbabwe: Corn producer subsidy equivalents

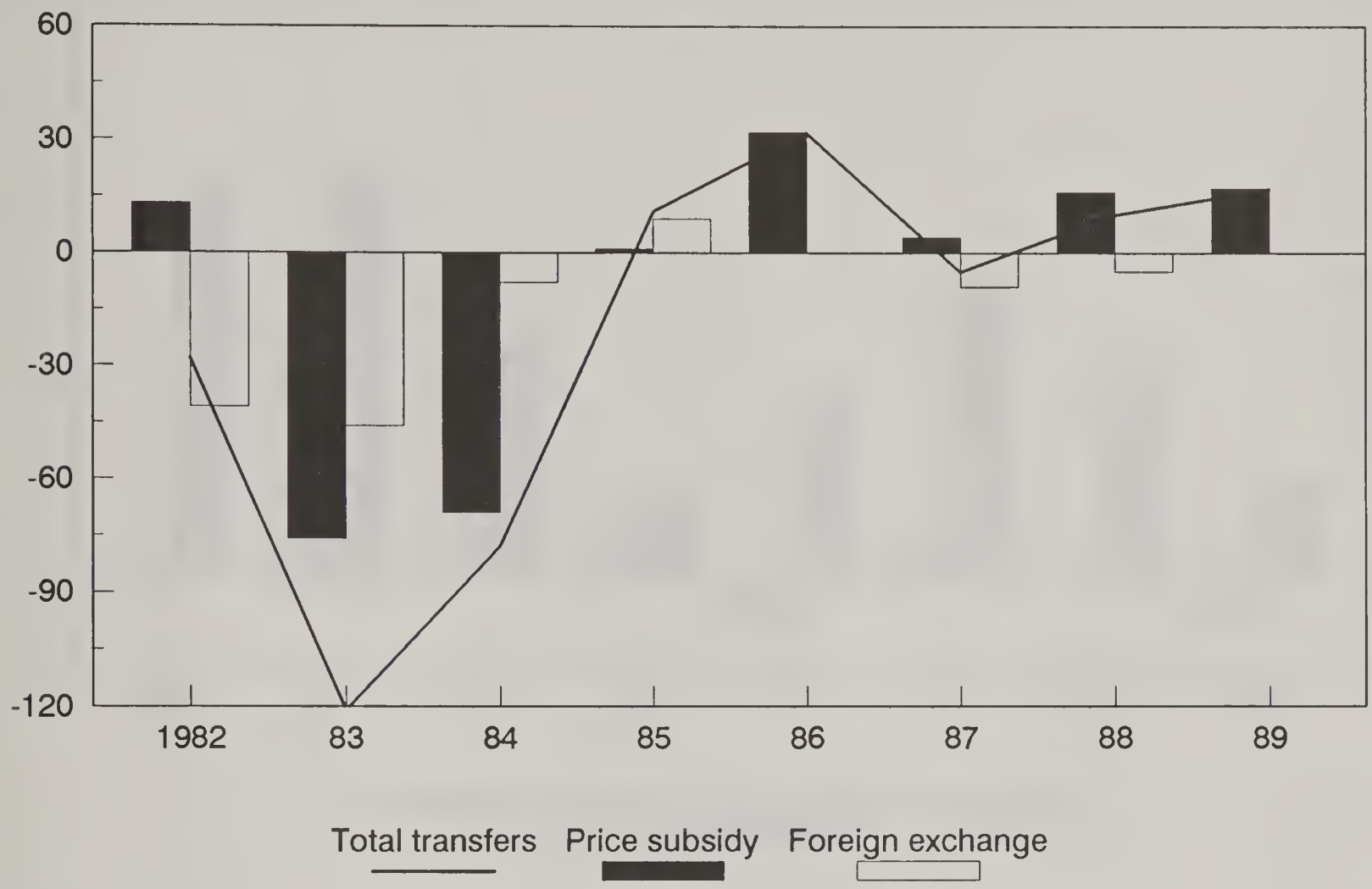


Figure 8

Zimbabwe: Wheat producer subsidy equivalents

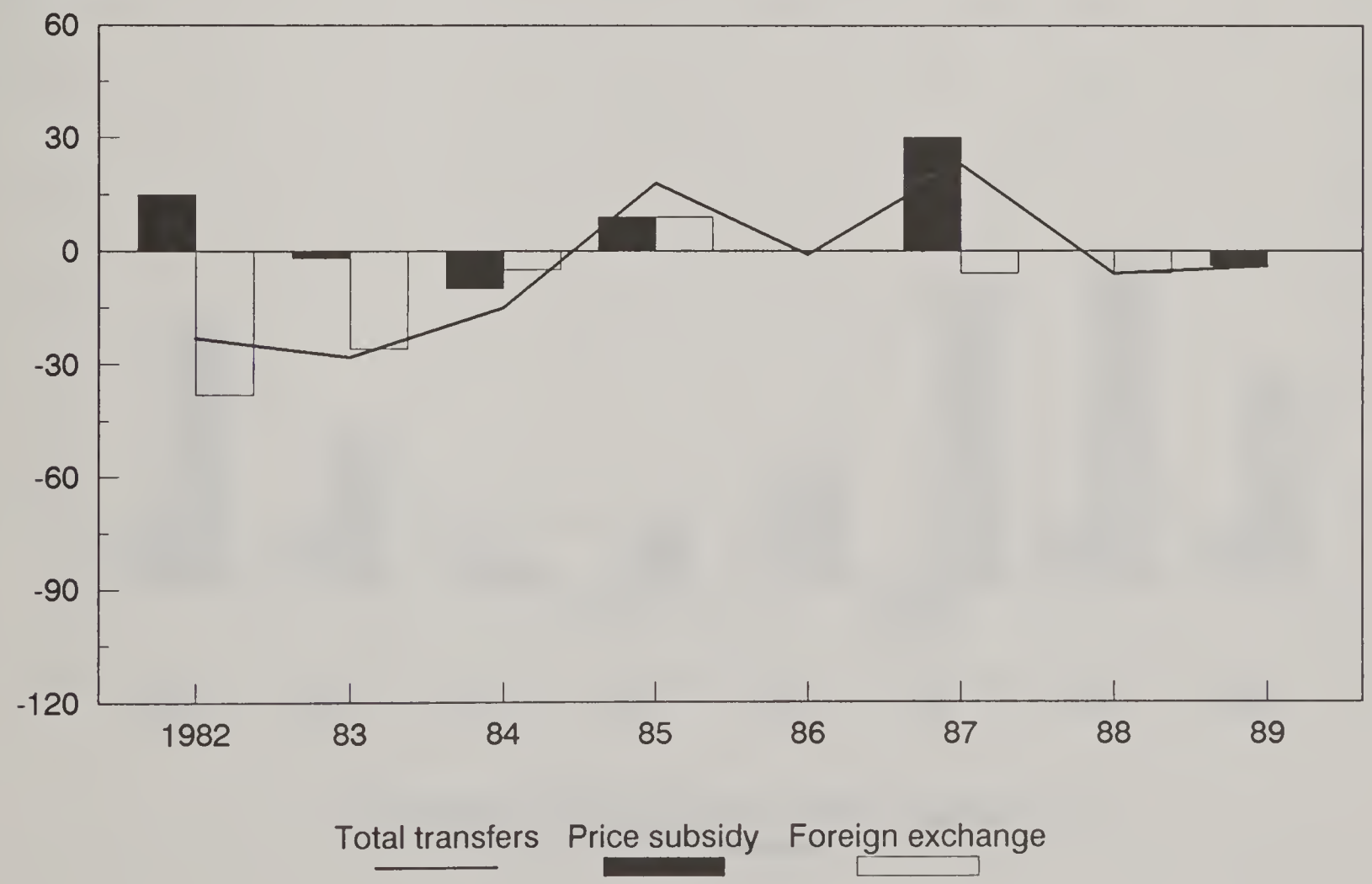


Figure 9

Zimbabwe: Cotton consumer subsidy equivalents

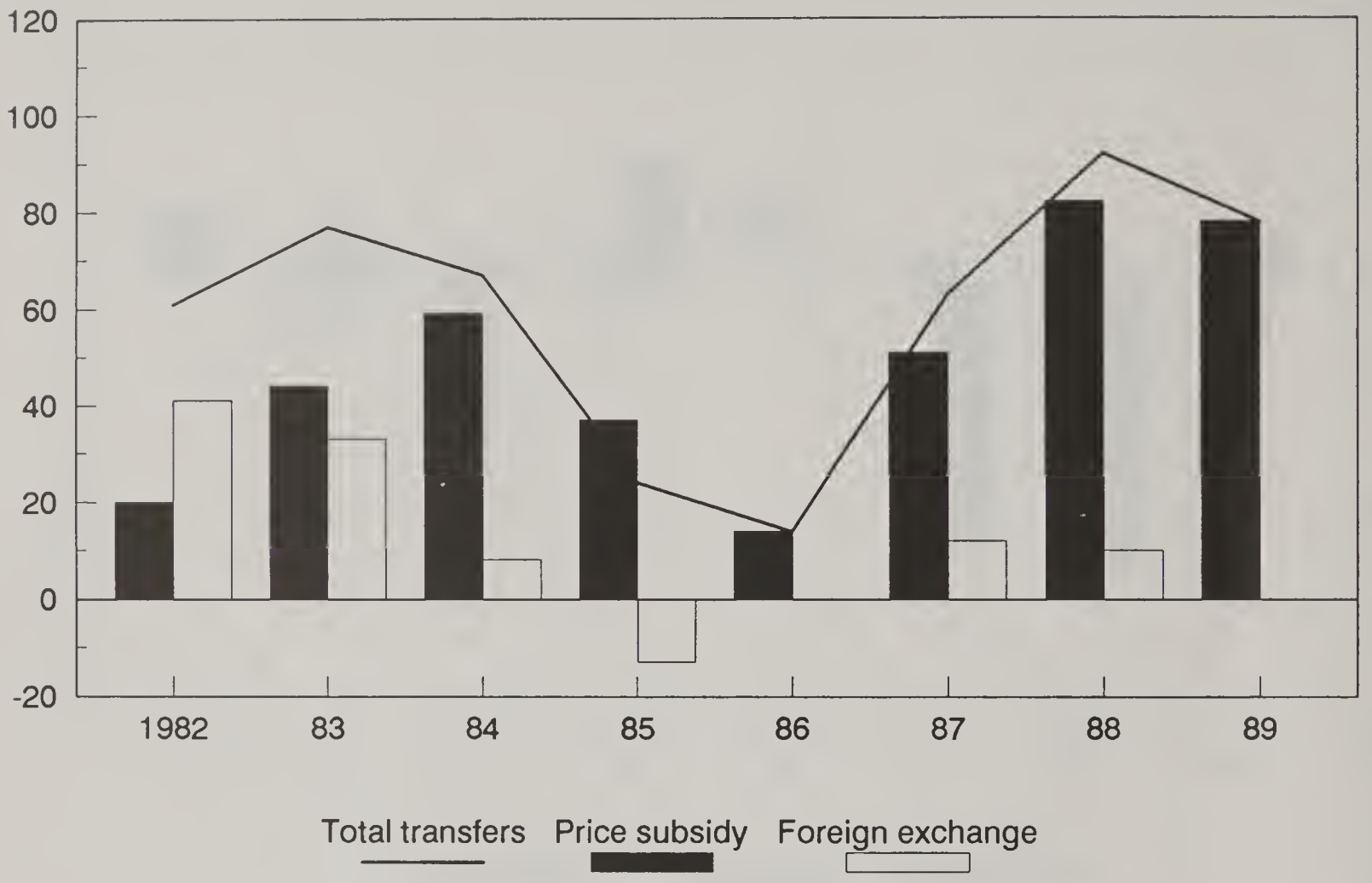


Figure 10

Zimbabwe: Sorghum consumer subsidy equivalents

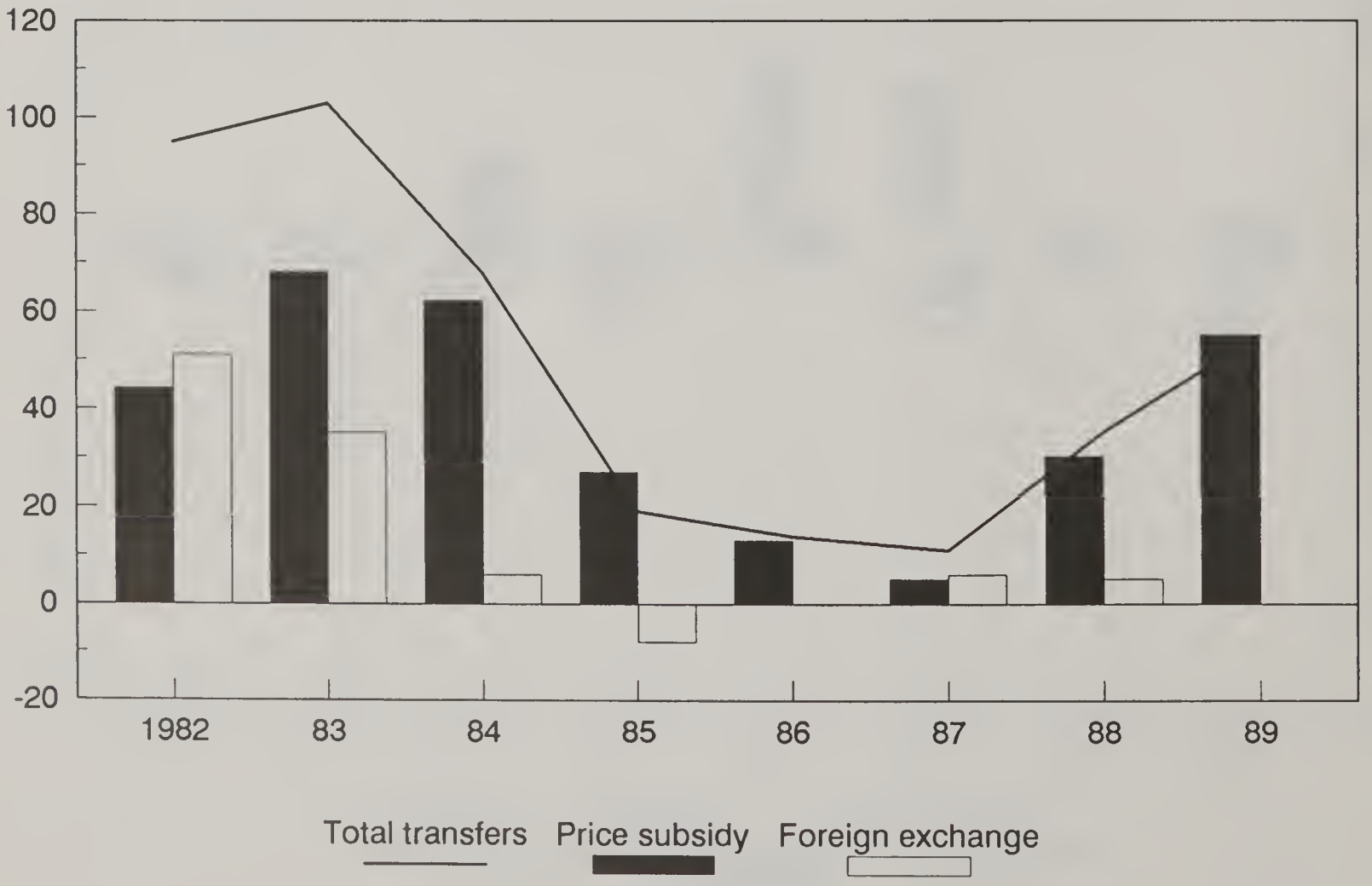


Figure 11

Zimbabwe: Corn consumer subsidy equivalents

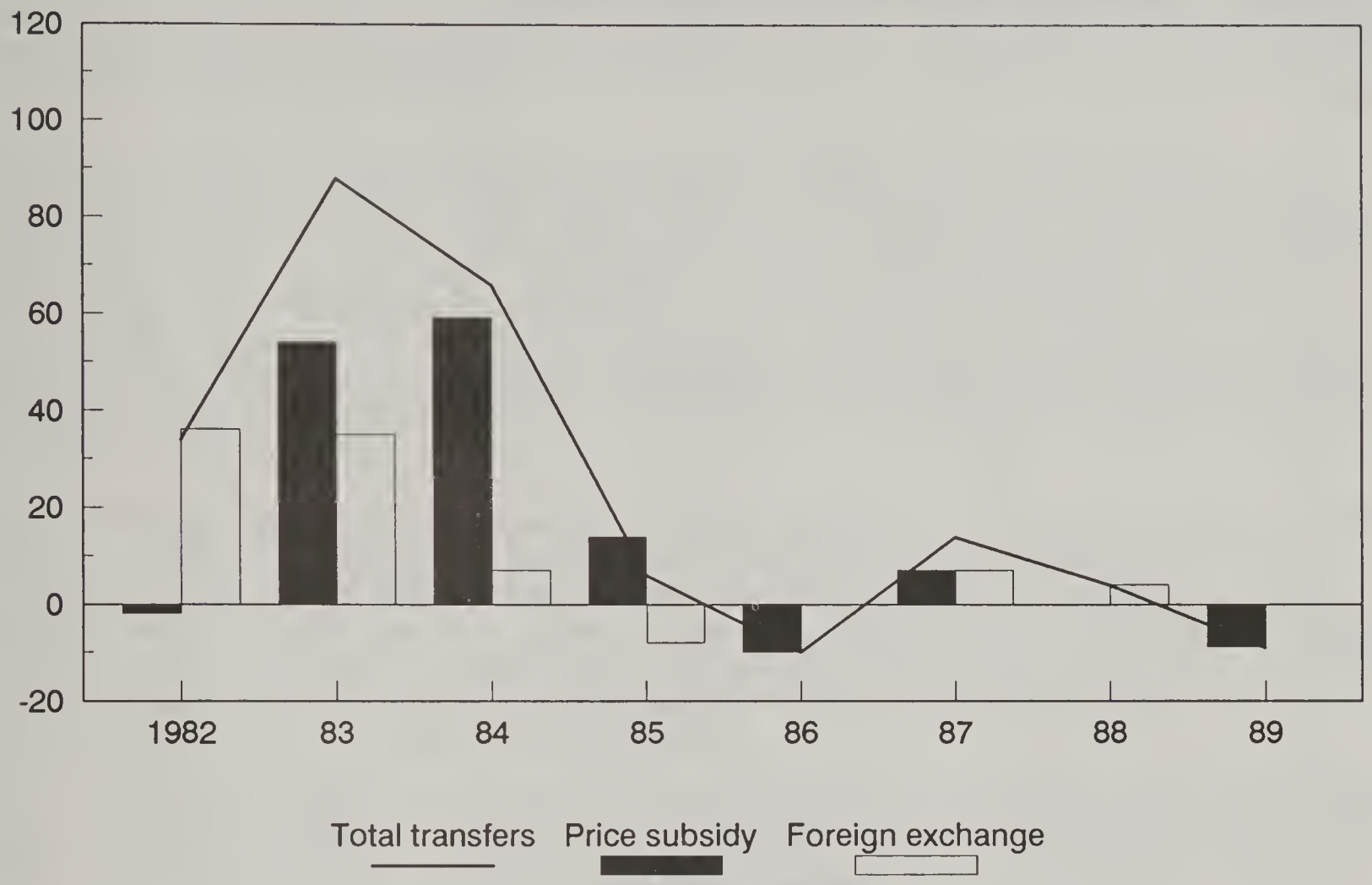


Figure 12

Zimbabwe: Wheat consumer subsidy equivalents

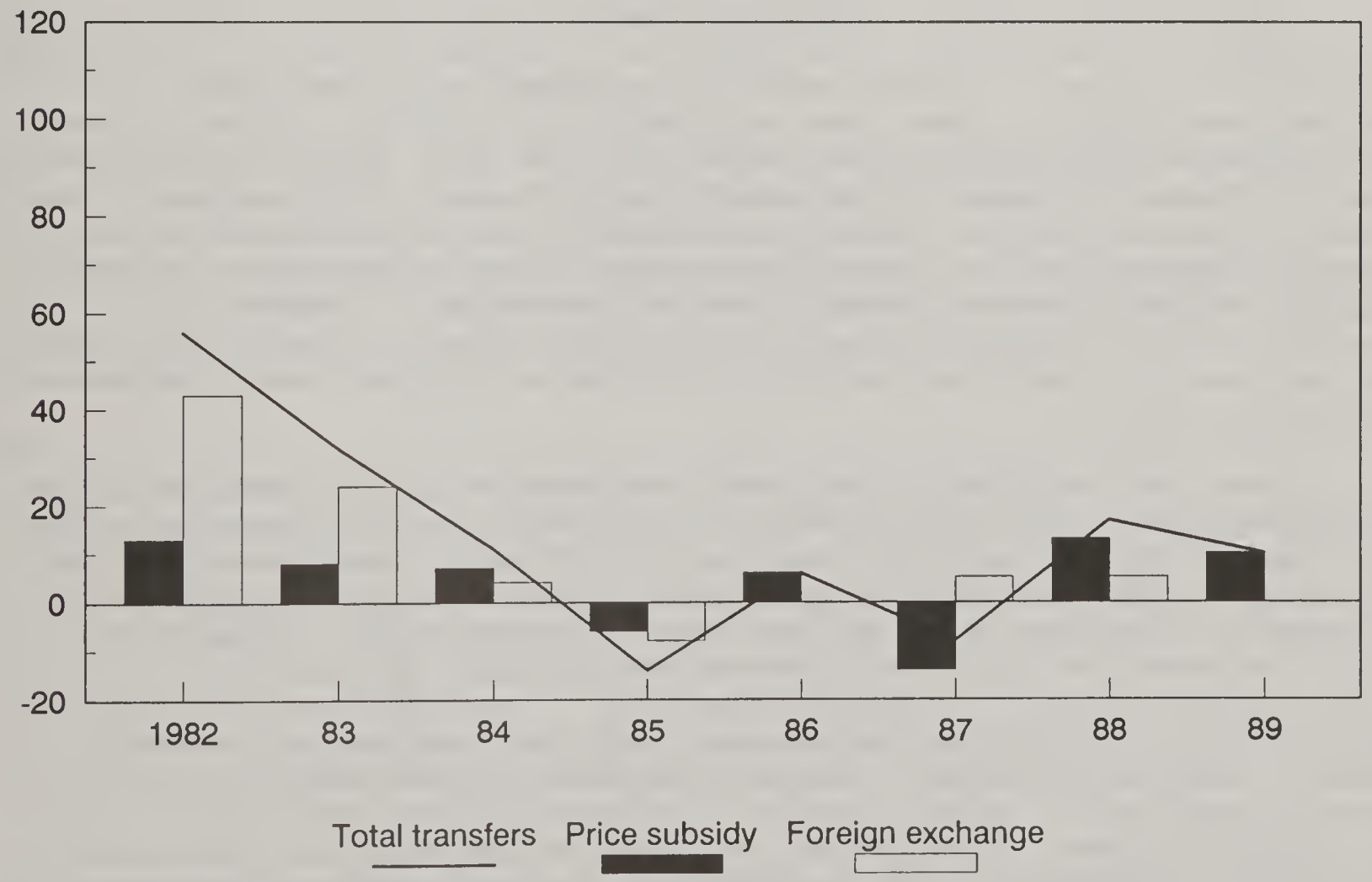
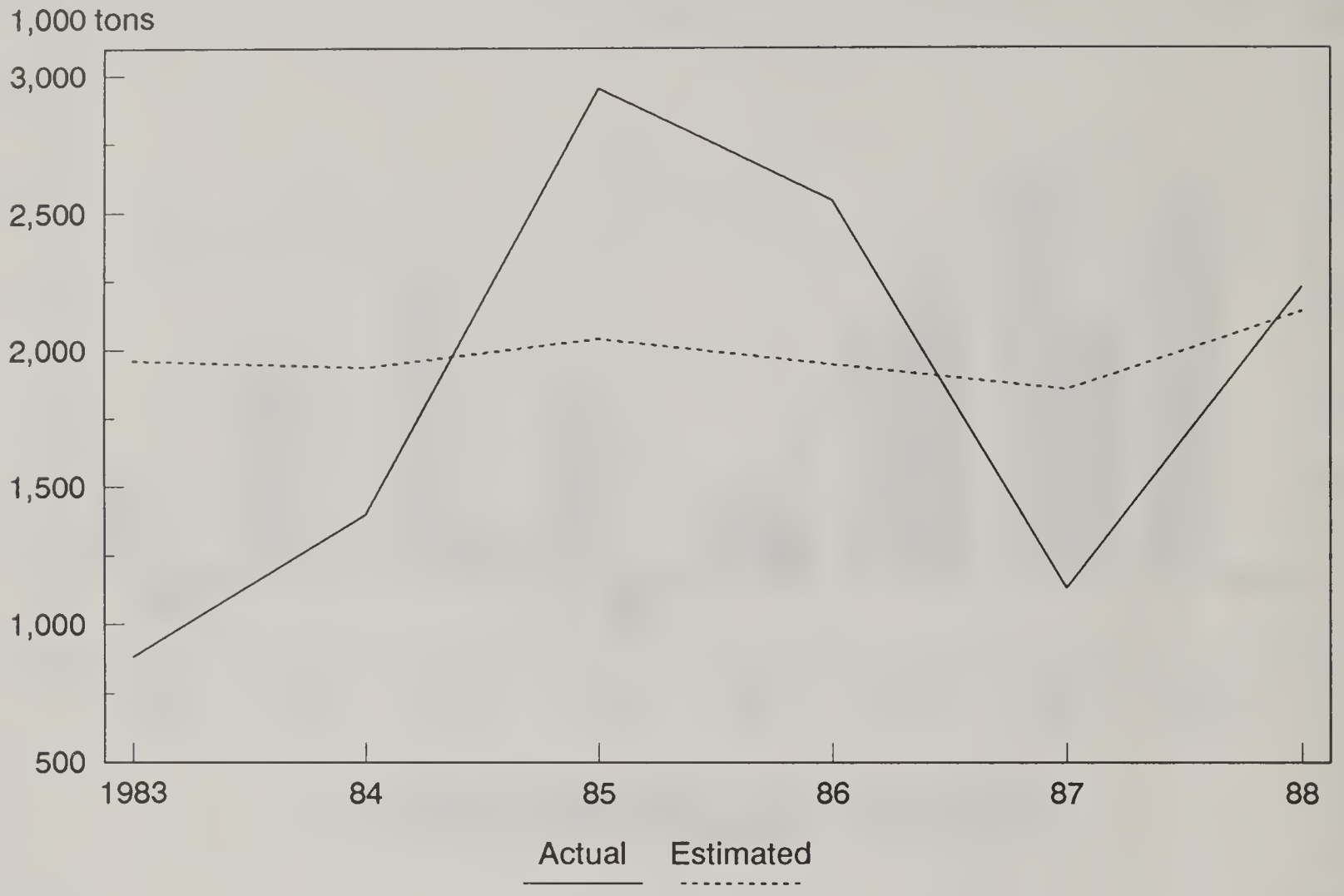


Figure 13

Zimbabwe: Corn production, actual and estimated



Conclusions

Zimbabwe's economic future well being depends on its ability to set macroeconomic, trade, and agricultural policy reforms aimed at increasing its productive capacity. In the 1990's, Zimbabwe's economy faces a number of external and internal challenges. One external factor is the rate of growth of industrial countries. Economic conditions in these countries largely determine global demand, which Zimbabwe itself cannot determine. However, internal policy adjustments can provide adequate flexibility to the economy to overcome external pressures and achieve sustained economic growth.

During the 1980's, among the most remarkable of Zimbabwe's policy adjustments was the improvement in its trade and current account balances, from deficits in the early 1980's to surpluses by 1987 and 1988. This turnaround was largely the result of improvement in external factors such as the economic growth of industrial countries and the internal import restriction policies.

From 1982 to 1988, Zimbabwe's real GDP declined at an average annual rate of 2 percent. With a population increase of 3 percent each year, this meant a 5-percent yearly decline in real per capita income. The principal reason for this was the slow growth in investment. To improve the current account balance,

Zimbabwe adopted restrictive monetary policies to limit the overall expansion of credit. The government, unable to reduce the rate of growth in public expenditure, borrowed from internal sources and intensified the reduction in availability of capital for private investment.

The decline in both domestic and foreign investment had a significant negative effect on the performance of the economy. The outlook for the rate of growth in investment is not clear. In 1989, the government adopted policies encouraging foreign investment. The positive balance of payments is expected to improve Zimbabwe's creditworthiness. Increased foreign credit is a crucial factor in growth recovery, meaning that substantial donor and creditor support is essential because of the country's limited resources.

Zimbabwe's growth in domestic investment is significantly influenced by domestic policies. There are a number of options open to the government to stimulate domestic investment. One major step would be to lower consumer subsidies, thereby reducing current government spending. This would be politically unpopular, but it would presumably free resources for investment--a critical adjustment.

An improving export sector, in addition to having a direct effect on economic growth, should help reduce financial constraints by increasing foreign exchange earnings and boosting funds available for the imports of capital goods. This, in turn, could make domestic investment more efficient. The poor performance of the export sector during 1980-88 indicates that the government's trade policy, especially in dealing with exchange rates, was insufficient to stimulate exports. Also, import restriction policies increased domestic consumption of exportable commodities such as coal, thereby limiting export growth.

Another problem is that many of Zimbabwe's principal exports have reached maturity in their production cycles, so that future output expansion will be marginal at best. There is also a widening technological gap between Zimbabwe and its competitors, which means that to achieve further export growth, increased investment in the export sector and export diversification are essential.

Macroeconomic policies such as credit and exchange rate are as important for the agricultural sector as for the economy as a whole. However, direct sectoral policies have an even greater bearing on producer incentives. The overall assessment of sectoral policies shows continuing support for the agricultural sector through price stability and nonprice incentives. However, weather continues to play a decisive role in the country's agricultural performance. The large weather related production variations often mask, reduce, or enhance the effect of incentive policies and precisely measuring them is often difficult.

The analysis of government policies on producer and consumer incentives for the selected commodities showed a decline in

producer taxes from 1982-89. The average policy impact was taxation on corn, sorghum, and cotton and subsidization of wheat. However, the magnitude of both subsidies and taxes was small. Subsidy policies toward consumer showed a declining trend but positive average subsidies for the four commodities.

Zimbabwe faces a number of politically sensitive policy decisions. The first is how to reduce rising government expenditures while pursuing equity objectives of increasing smallholder incomes and protecting consumers. Second, how to diversify crop output and achieve long-term stability in agricultural growth. Third, how to provide sufficient trade incentives to avert loss of market share for its principal exports. Each of these is critical to Zimbabwe's well being and to regional stability.

Zimbabwe should continue to be self-sufficient in the output of most basic food commodities. Production expansion can be promoted for commodities suited to small farming, such as food grains, oilseeds, and legumes. Commercial farmers will continue to play a major role in the output of all commodities. The strategy is to promote diversification by developing new export commodities and identifying import substitution crops. Applying the correct policies in an ever-changing environment will test Zimbabwe's policymakers and planners.

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Appendix--Zimbabwe: Summary and time frame for structural adjustment policies

Policy	Goals	Course of action	Date	Accomplishments
External policies:				
Exchange rate	Maintain a flexible exchange rate policy to improve competitiveness of exports.	Review and adjust the composition and weights of the currencies in the basket regularly.	1986-88	Based on official consumer prices, the Zimbabwe currency depreciated at an annual rate of 6 percent in real terms from 1983 to 1988.
		Since December 1982, exchange rate determined with reference to a trade weighted basket of currencies.	1982	
External loans and debt management	Follow a conservative debt management policy. Reduce debt-service ratio below 20 percent.	Limit borrowing on commercial terms.	1988	The debt-service ratio reduced to 29 percent in 1988 and 23 percent in 1989. Zimbabwe remains current on its debt service obligations.
		Shift borrowing to longer maturities and more concessional terms.	1987	The debt-service ratio increased from 26 percent of exports in 1983 to a peak of 32 percent in 1987.
Investment	Promote private sector investment, both domestic and foreign, to achieve rapid growth in output and employment.	Limit processing time of approval of investments; liberalize controls on the externalization of dividends and profits; and entitle new investment to 50 percent of profits.	1989	
	Encourage new foreign investment in commodities with export potential.	Allow investors to retain part of their foreign exchange earnings and to import inputs duty free. Such investments will remit 100 percent of dividends.	1987	Improved incentives for foreign investors. Foreign companies currently remit only 25 percent of after-tax profits, or 50 percent if investment made after 1979. New guidelines increase pay out for "priority" projects to 100 percent.
	Reduce the extent of foreign control over the economy.	Many of the old South African and British-based companies shifted their overall investments out of the Southern African region.	1984	The government controlled the disinvestment process and was prepared to restrict external remittances from activities established prior to 1979.
Exports	Encourage outward orientation of industry.	Establish a bonus scheme of additional allocation of foreign exchange for firms that increase their export earnings.	1988	Provided an incremental foreign exchange allocation equal to 25 percent of the increase in export earnings to finance imported inputs for the domestic market.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
	Improve balance of payments by increasing exports.	Establish an export promotion program to finance imports of capital equipment and inputs for export-oriented mining and agriculture through foreign commercial bank loans.	1987	In 1989, export earnings increased by 4 percent as the poor performance of agricultural and mineral exports was offset by strong growth in manufacturing exports.
	Promote exports of nontraditional products.	Grant an export subsidy of 9 percent of the f.o.b. value granted on exports with a minimum domestic value-added of 25 percent.	1984	Exports remained sluggish with export volume in 1986 barely reaching the level of 1980.
		Establish a revolving fund to promote manufactured exports.	1983	Although initially financed by the World Bank, the fund has continued by using its own resources.
Imports	Reduce distortions arising from the trade and payments management system.	Authorize the government to begin gradual import liberalization by shifting from quantitative restrictions to price related protection.	1989	Initial steps included expansion of foreign exchange allocations and an open general license scheme in 1990.
	Increase government revenue through import valuation adjustment.	Change import valuation system from rates based on f.o.b. to c.i.f. based rates.	1988	Government import tax revenues are expected to increase 15 percent (c.i.f. rates are 15 percent higher than f.o.b. rates).
	Reduce current account deficit.	Impose strict controls on the allocation of foreign exchange for imports and other transactions.	1987	Current account deficit decreased from 11 percent of GDP in 1982 to an approximate balance by 1987. Import volume declined over 30 percent from 1982 to 1987.
Internal policies:				
Fiscal policy	Implement major and sustained reduction of the budget deficit and release resources to private sector productive investment.	Establish a medium term target to reduce overall budget deficit from 12 percent of GDP in 1988/89 to less than 5 percent.	1989	A steady sizable reduction in the overall budget is expected to continue.
	Increase spending for drought relief, defense, education, and subsidies.	Have the government introduce supplementary budget in Parliament.	1984	No new revenue measures were included in the budget leading to an increase in the central government deficit from 9 percent of GDP in 1982/83 to 11 percent in 1983/84.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
	Increase access to social services by the majority of the population, while expanding the public investment program.	Augment government revenues through increased sales taxes and customs duties, accelerated payments of business income taxes, and income tax surcharges.	1980-84	Budget deficits became increasingly large and difficult to finance because subsidies, transfers, and interest payments rose much faster than expected.
Monetary policy	Contain inflation through foreign exchange allocation to meet balance of payments objectives.	Limit monetary expansion to 20 percent, following a 25-percent increase in 1988/89.	1989/90	Monetary policy, including interest rates, directed toward controlling inflation, promoting savings, and increasing investment efficiency.
	Minimize the adverse effect on money and credit of the new exchange control measures and the supplementary budget.	Increase the statutory liquid asset ratio for banks, issue Reserve Bank bills that were nonrediscountable and nontransferable, and raise the interest rates on deposits.	1984	Limited the credit creation arising from excess liquidity.
	Restrain excessive demand pressures.	Raise interest rates and increase statutory reserve requirements for financial institutions.	1981	
		Follow expansionary monetary and credit policies.	1980-82	Domestic credit expansion accelerated from an annual average of 10 percent in the late 1970's to nearly 28 percent in 1980-82.
Interest rates	Reduce monetary expansion.	Lower liquidity rates of banking and nonbanking institutions.	1983-84	Move toward reduced liquidity has continued.
Consumer prices	Reduce government intervention in price determination.	Lift price freeze and introduce new price regulations.	July 1989	The new regulations classified goods into different categories for which different price setting rules apply. Prices are now set directly by the cabinet for nine basic consumer goods, mainly foodstuffs.
	Permit controlled price increases for some products.	Permit prices of products to increase 5 percent, except for essential goods such as corn, sugar, milk, bread, beef, cooking oil, and fertilizer.	May 1988	Justification for price increase of 5 percent or less must be sent to Minister of Trade and Commerce within 30 days. Five- to 10- percent price increases require prior approval by the Minister of Trade. Increases above 10 percent require Cabinet approval.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
	Reduce or contain consumer prices.	Gradually reduce sales tax rates from 20 percent to 12.5 percent.	1983-87	
	Increase prices to respond to rising production costs.		Sept. 1983	Wholesale and retail prices for major agricultural products increased as follows: cornmeal 40-45 percent, bread 25-30 percent, milk 50 percent, beef 30-50 percent, vegetable oils and fats 25 percent.
	Reduce consumer subsidies.	Reduce subsidies on foodstuffs, electricity, and fuel.	1982-83	
	Set price controls.	Authorize the Cabinet to control prices of essential goods. All other goods fall into two categories: (1) Minister of Trade and Commerce controls basic manufactured goods, such as steel. (2) A wide range of other products are subject to markup controls with percentage markup limited to that obtained from a 1981 base.	1982	Consumer prices controlled by the government.
Wages	Gradually reduce government involvement in wage determination.	The Government to permit a limited form of collective bargaining in which labor and management are allowed to negotiate wages within certain parameters.	1989	Government will continue to prescribe wage levels for the public sector, domestic services, and agriculture.
		Lift wage freeze and increase minimum wages by 15 percent.	1988	
	Narrow the income gap between rich and poor in order to protect the poor.	Authorize the government to impose general wage and price freeze.	1987	Wages in the public sector did not increase due to the price freeze, offsetting benefits for public employees.
	Raise wages of farm workers.	Set new minimum wages for agricultural employees, as well as those employees in agro-industry.	1986	While institutions exist for decentralized wage decisions, and some institutions bargain collectively, the government intervenes in private sector wage determination.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
	Narrow income differences, raise standard of living for low income workers, and contain inflation.	Set a statutory minimum wage.	1980	Set controls over wage increases. Graduated scale for wage increases with the highest percent increases at the lowest income levels.
Agricultural policies:				
Marketing parastatals	Reduce the level of subsidies to the marketing parastatals.	Set more realistic pricing policies and streamline the management of parastatals.	1989	Reduced transfers and subsidies to parastatals, which amounted to 3.4 percent of GDP in 1988/89. Recommend linking subsidy transfers to current operations of parastatals.
	Expand marketing services to small (communal) holders.	Enhance the financial performance of parastatals via improved pricing policies to reduce losses.	1989	Improvements in pricing policy of some parastatals already made.
Inputs	Reduce production costs. Close the gap between small and large farms.	Allocate resources through the price mechanism.	1987	Despite the price freeze cost of inputs increased as follows: chemicals, 6 percent; machinery, 16 percent; irrigation repairs, 3 percent; and seed, 1 percent.
Agricultural credit	Increase credit to agriculture.	Allow the Central Bank to influence credit allocation directly through loan quotas to the Agricultural Marketing Authority, and indirectly through an administrative allocation system.	1988	Credit to large scale clients decreased, and loans to the smallholder sector increased.
			1987	Credit to agriculture rose 37 percent in 1986 and 74 percent in 1987.
			1986	Domestic credit expansion accelerated by 14 percent with increased credit to the AMA to purchase large corn crop and support tobacco exports and stocks. Credit to private sector rose due in part to higher lending to agriculture, manufacturing, and distribution and partly to public enterprises other than AMA.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
Producer prices	Maintain prices of major crops at attractive levels, thereby contributing to substantial rise in output, especially of smallholders.	Producer prices continue to be set by the government.	1989	Producer prices progressively brought closer to world prices and now (1989) virtually equal to border-price equivalents at the official exchange rate (except for peanuts and cotton where implicit subsidies are appreciable).
	Redress biases against communal agriculture.	Reorient extension and marketing services and incentive policies to address needs of communal farmers.	1987	
	Set income support for small farmers.	Increase producer prices for sorghum, soybeans, millet, peanuts, and sunflower seeds.	1986-88	Producer and selling prices set by Ministry of Lands, Agriculture, and Rural Resettlement.
Corn	Encourage diversification from corn into cash crops.	Producer prices of corn held constant. Steadily increase wheat producer prices.	1986-88	Real price of corn fell approximately 25-30 percent.
	Reduce stocks of corn from 1985/86 bumper harvest and encourage diversification of production.	Authorize government to raise prices by 20 percent, from Z$180 to 215 per ton ($84 to $110).		
	Encourage self-sufficiency in corn and maintain a strategic reserve of approximately 700,000 tons.	Set producer prices for corn with self-sufficiency objective, with no reflection of world prices in price policy.	1980-85	The share of marketed corn originating from the communal agricultural sector increased significantly.
Wheat	Encourage wheat output with subsidies. Control wheat supply and reduce shortages.	Ration the release of wheat from Grain Marketing Board to millers.	1988	Prevented seasonal shortages of wheat. With increases in demand, government is pursuing alternatives to increase supply while conserving foreign exchange, encouraging increased production, and continuing wheat for corn swaps in triangular trade agreements.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
Milk	Reduce milk subsidy.	June 1988 program seeks to gradually cut subsidies and reduce quota based system, where milk producers are paid one price based on past output and second price for excess supply.	June 1988	
	Wipe out Dairy Marketing Board deficit by increasing output.			
			1988	Milk output by small scale and communal farmers continues to rise in line with Dairy Development Program.
	Increase milk output and raise consumption levels in both rural and urban areas.	Increase dairy price as incentive to producers.	1980-85	A number of new dairy farmers entered the industry and raised milk output thereby maximizing return on investment.
Oilseeds	Encourage production of oilseeds to meet demand for oil and meal and to export to neighboring countries.	Increase the price of oilseeds by 45 percent in 1987.	1987	Self-sufficiency in oilseeds reached in 1987. For 1986, 1987, 1988, communal farmers reduced corn plantings and increased soybean area.
Cotton	Encourage cotton production, especially in communal sector.	Increase producer prices for cotton, especially relative to corn prices.	1985-89	
	Increase exports of higher quality cotton.	Historically, price differential between different grades of cotton was insufficient to encourage farmers to grow higher grades.	April 1987	Announced 5-percent per kg. price increase for grade A and A(ss) seed cotton to improve quality of deliveries.
Tobacco	Increase production of high quality tobacco for export.	Authorize the Tobacco Marketing Board to suspend all production controls.	1987	Government does not interfere in burley industry. Market forces determine producer price and producers determine volume produced.
		Do not permit imports of flue-cured tobacco.	1986	
	Increase output of flue-cured tobacco by communal farmers.	Free production of tobacco from state administered quota system.	1985	Bulk of tobacco is flue-cured and marketed by private traders through Tobacco Marketing Board.
Coffee	Double production of coffee in next 5-10 years to increase share in world export market.	Authorize the Grain Marketing Board to pay producers an intermediate price, usually an average between export quota and nonquota price.	1987	Uncertainty of future coffee market, international price, and size of Zimbabwe's ICA quota makes farmers hesitant to invest in expanding production at this time.

Continued--

Appendix--Zimbabwe: Summary and time frame for structural adjustment policies--Continued

Policy	Goals	Course of action	Date	Accomplishments
Livestock	Maintain producer confidence in beef market and meet export contracts.	Raise prices another 7.5 percent by July.	1988	Efforts made to raise offtake by small farmers and reach full capacity utilization.
	Encourage herd rebuilding after drought.	Increase producer price for beef cattle by 30 percent.	April 1987	Government may require communal farmers to dip their cattle themselves, previously a government service, thereby increasing costs and encouraging deliveries to slaughter.
	Encourage increased production and slaughter of cattle from communal farms.	Improve research, extension, and veterinary services for communal farmers.	1987	Since 1984, there has been a herd rebuilding program, especially in communal areas, with herd size increasing by 20 percent by 1987.

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